Royalists from behind. They surrendered and, since most of them were English, joined up with the Parliamentarians (Kelly 1996)

The entire battle lasted only two hours. Jones' troops captured the camp at Rathmines with little difficulty and helped themselves to the stores of wine, wool and linen and about 200 draught oxen (Kelly 1996). The castle at Rathmines was very badly damaged. The importance of the Rathmines victory for the Parliamentarians can be judged by Cromwell's statement about it in a letter from Milford Haven on the 19th August "...This is an astonishing mercy, so great and seasonable, that indeed we are like them that dreamed" (T. Carte. Original letters and papers, 1739, 11)

15.3.2.3 Rathmines Castle

The castle was restored and Sir George Radcliffe was still stated to be the owner of the lands, which must have been very extensive as his house alone had a demesne of 60 acres. However, the house and demesne were occupied by Captain William Shore. Shore died in 1668 and ten years later there were legal proceedings between his representative and Thomas, the only son of Sir George Radcliffe, with regard to the lands of Rathmines (Kelly 1996).

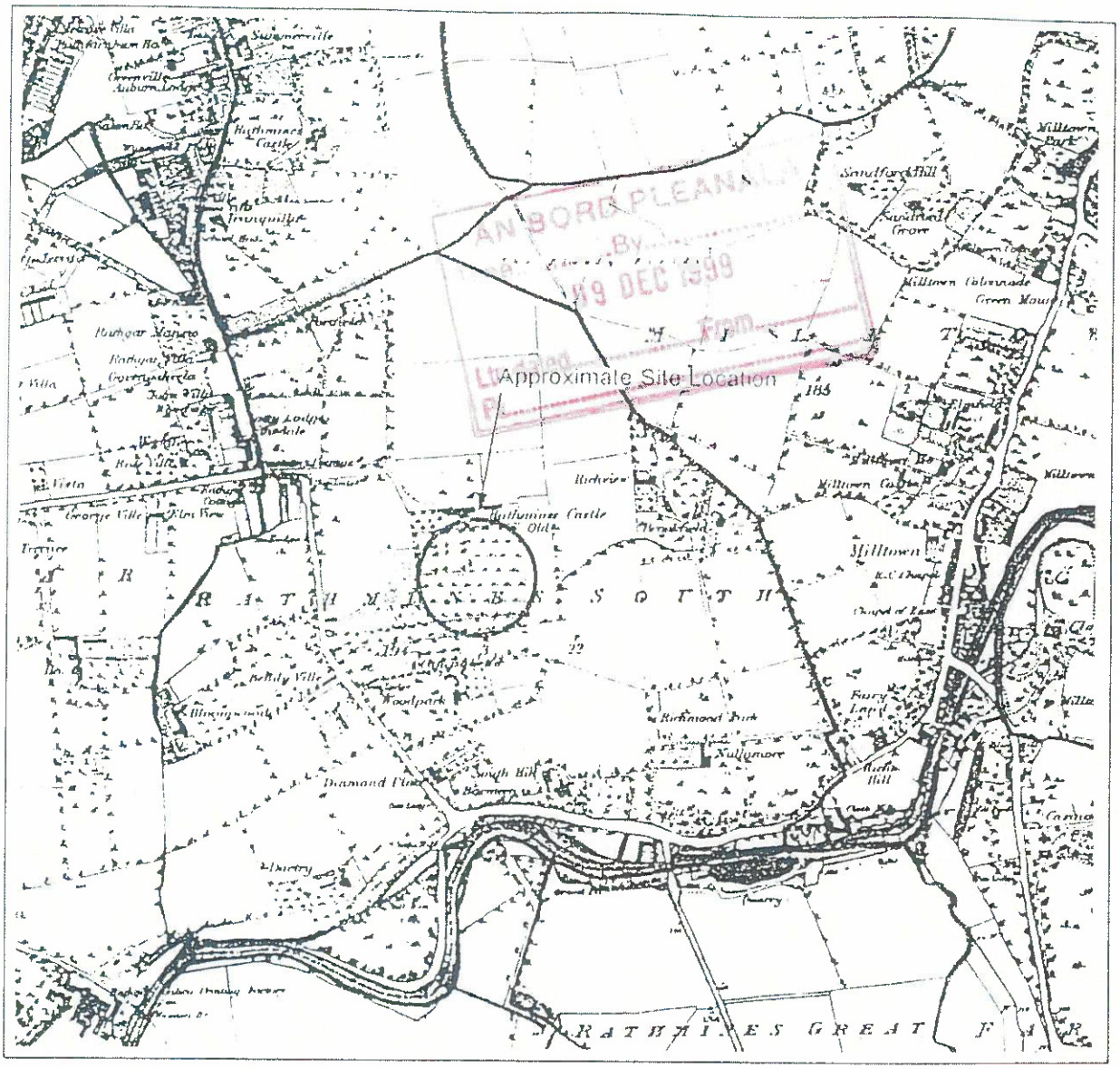
In the 18th century the lands came into the possession of the Temple family and in 1746 Henry, the first Viscount Palmerston, leased the house to the Right Hon. William Yorke, Chief Justice of the Common Pleas in Ireland (see figures 15.3 and 4). His stay here was probably why this part of the Milltown Path was for a period known as Yorke's Path (Kelly 1996)

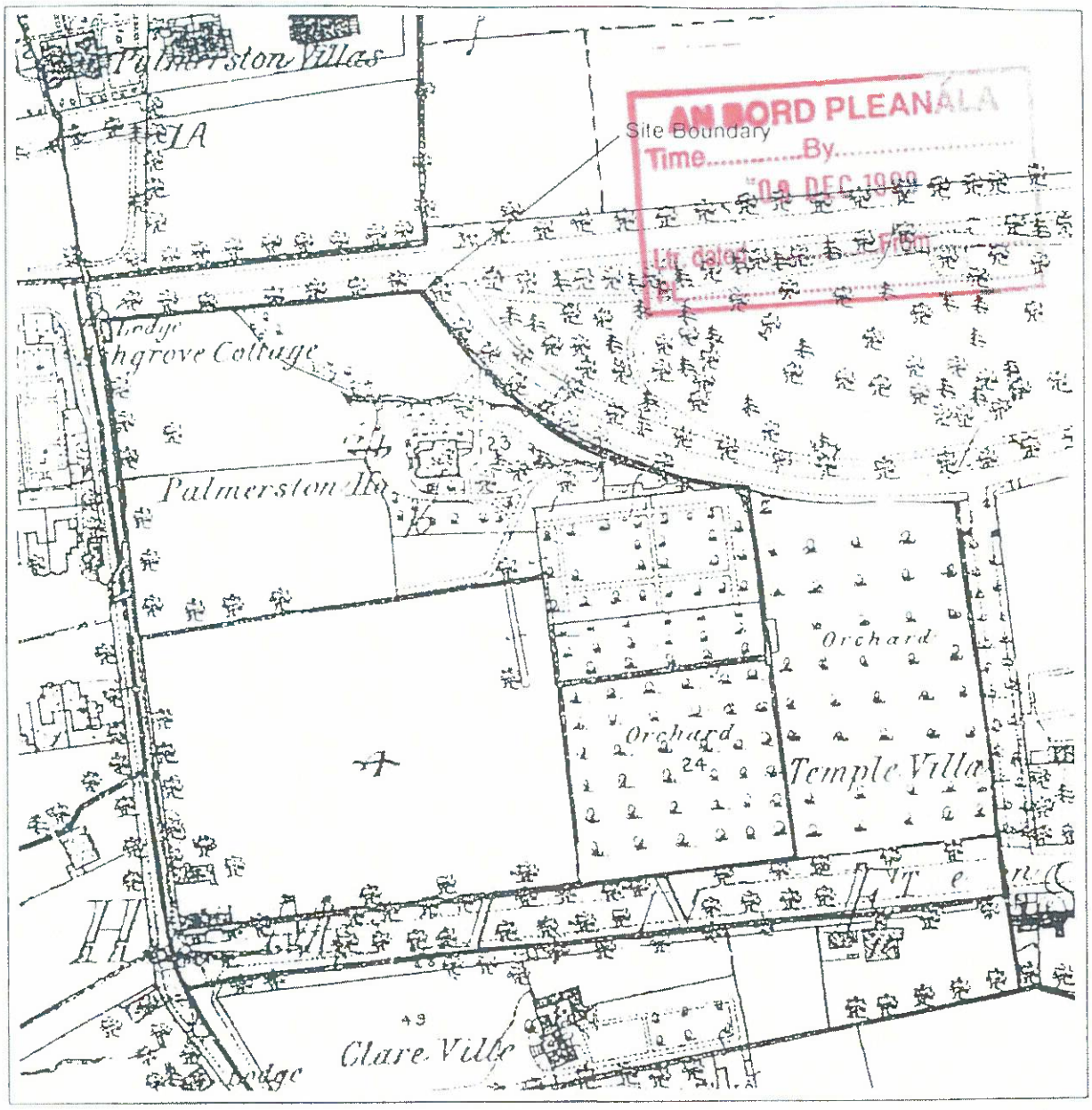
The Reverend Charles Barry ran a school there at the end of the 18th century. The syllabus included the Classics, Mathematics, English, History, Geography, French and Debating. The school day began at 6am in the summer and 7am in the winter. He described the building thus in 1795:

> *"...The spaciousness of the house, formerly the residence of Lord Chief Justice York, enables me to accommodate each of my pupils with a separate bed. The playground, likewise, is very extensive and in part surrounded with a piazza where the young gentlemen exercise in times of bad weather....And the whole of my farm which consists of 22 acres is enclosed by a wall nine feet high." (cited in Kelly 1996, 166).*

The exact location of Rathmines Castle (SMR DU022:087) has been the subject of considerable debate by historians. Ball (1903) in his history of the County of Dublin places it on ground lying between Palmerston Villas and Cowper Villas. Joyce (1912) claims that it stood on the site occupied by a house known as 'The Orchards' and the 1837 edition of the O.S. map shows 'Rathmines Castle Old' marked on a spot that seems to be inside what is now Palmerston Park (see figure 15.5). The demesne itself would appear to comprise the present-day areas of Milltown north of the Dodder, Dartry and a large part of Upper Rathmines. The Sites and Monuments Record agrees with Joyce and the 1837 O.S. map and sites it between 'the Orchards' and Palmerston Park (see figure 15.6).

Further up the Rathmines Road the 'new' Rathmines Castle was built about 1820 by a Colonel Wynne and later occupied by John Purser Griffith, Chief Engineer to the


Approximate Site Location
Milltown
Rathmines Castle
Richview
Woodpark
Richmond Park
Nullamore
Sandford Hill
Sandford Grove
Milltown Park
Milltown Cottages
Green Mount
Rathgar Manor
Rathgar Villa
Rathgar Lodge
Rathgar Cottage
Rathgar Terrace
Rathgar Avenue
Rathgar Road
Rathgar Bridge
Rathgar Bridge Cottage
Rathgar Bridge Lodge
Rathgar Bridge Terrace
Rathgar Bridge Villa
Rathgar Bridge House



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20 JUL 2020
LTR DATED _____ FROM _____
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FIGURE 15.6 :
2ND EDITION O. S. (1864)

Dublin Port and Docks Board. Though 1820 seems to be the accepted date for this building, a castle is shown on Taylor's map of 1816 where it is indicated as much closer to the eastern boundary of the grounds and is simply marked 'castle'. There may have been an earlier castle on these grounds also although there is no historical record of it and no SMR designation is given to it. Wynne's Castle is now demolished and the grounds now house the Church of Ireland Teacher Training College, which moved here from Kildare Place in 1969 (Kelly 1996).

Looking at the Ordnance Survey Maps for the area, a number of changes are visible. The 1st edition O.S. map (6 inch, 1837) shows the site of Rathmines Castle 'old' with a large planted area stretching south of this (see figure 15.5). By 1864 and the 2nd edition map (25 inch), the area has changed considerably. The site of Rathmines Castle 'old' is no longer shown. The area formerly occupied by the castle has been laid out as a semi-circular garden, planted with trees (north-west corner of figure 15.6). 'Palmerston House' (later Purser House) and its surrounding gardens, including an orchard, occupy the present site of Trinity Hall. By 1907 (see figure 15.7) and the 3rd edition map (25 inch) three more houses occupy the site of Trinity Hall i.e. 'Glen-na-Smoil' (now Cunningham House) and Grenane House, both of which survive to the present day. Part of 'The Orchards' protrude into the boundary of Trinity Hall but this house is completely destroyed now. The area formerly occupied by Rathmines Castle is now called Palmerston Park and survives in this form to the present day.

15.3.3 Field Inspection

The area was inspected on January 8th 1999, by Finn Delaney of Margaret Gowen & Co. Archaeological Consultants and Project Managers, in cold, dry, bright conditions. There is some doubt about the exact location of the site of Rathmines Castle and so the entire development area was walked and examined for possible sub-surface archaeological features. It is likely that ancillary features such as an enclosing bawn wall, gardens, orchards etc. were present in the area surrounding the castle.

The development area is divided into seven for the purposes of this report (see figure 15.1). All areas of the site are easily accessible from the main entrance to the grounds on the Dartry Road.

15.3.3.1 Area 1

This area to the north-east of the proposed site is occupied by Trinity College Botanic Gardens. The eastern half of the area is bounded by a large stone wall and is a completely manufactured environment with a series of gravel paths bounding a number of flower and shrub beds. The western half of the area includes seven substantial glasshouses surrounding a well-manicured grass lawn with a number of large trees. The area is enclosed by an old stone wall, which has a gate leading to a small overgrown walled garden with a temporary glasshouse in the centre. To the north of area 1 is a small one storey flat roofed structure, which is the main Trinity College Botanic building. There is a gravel car park to the front with an entrance on to the Palmerston Park road. To the rear of this building, separated by a gravel path, is a tool shed and incinerator with a tall chimney-stack. No obvious archaeological features were noted.

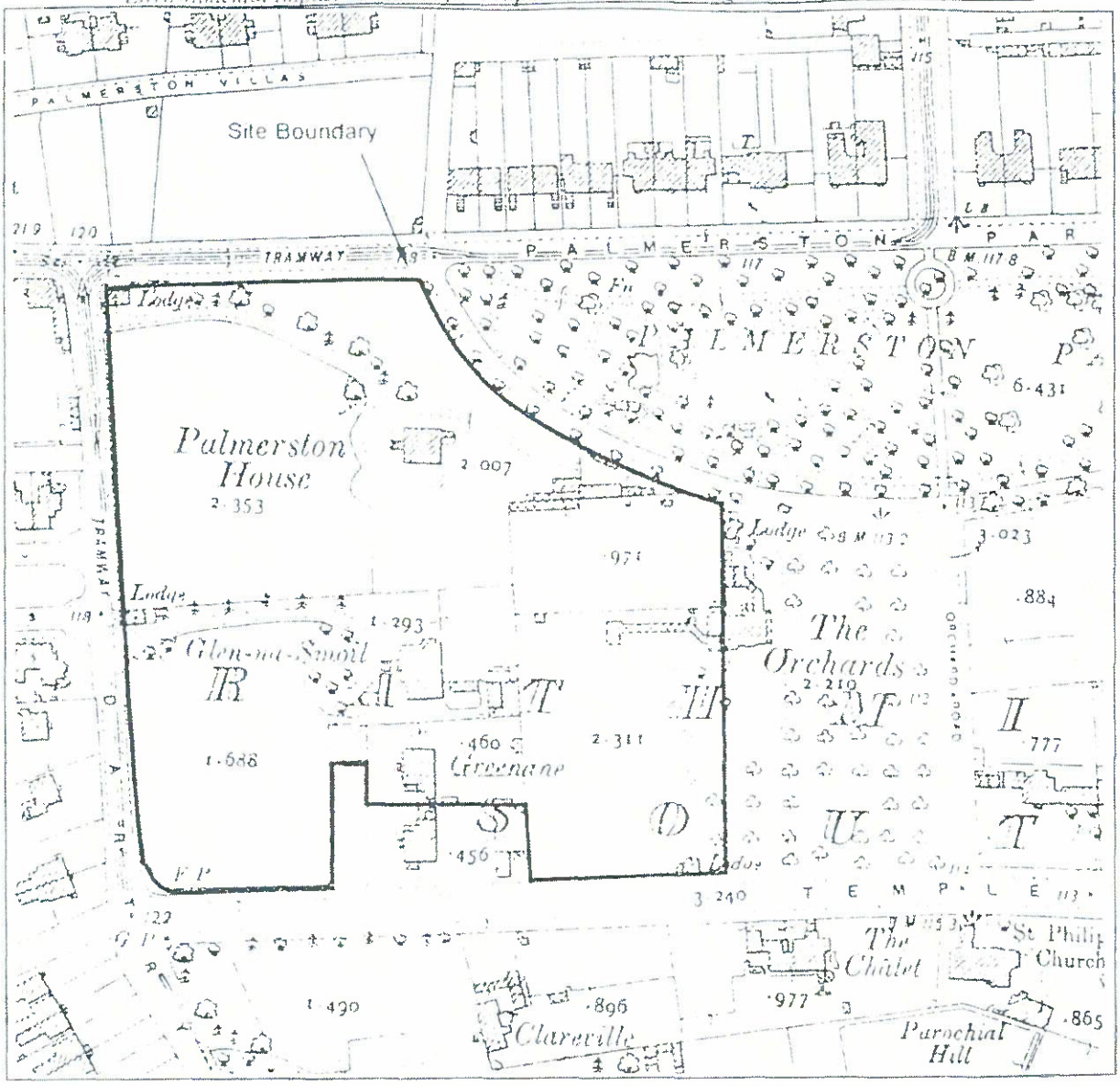

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FIGURE 15.7 :
3RD EDITION O. S. (1907)

15.3.3.2 Area 2

A gravel path runs through the north of this area. To the north of this path there is an area of medium size trees with a dense undergrowth of bushes and shrubs which begins to thin out as you progress westwards along the path. To the south of the path the shrubs and plants are related to the Botanic gardens but gradually become larger and wilder until, at the rear of Purser House, a number of large trees are present. To the south of this vegetation break is an area bounded by the old red brick wall enclosing the green houses in Area 1 and the modern three storey extension which joins Purser House and Trinity Hall. This area has a well-kept grass lawn and two lines of apple trees and could be described as a small orchard. A blocked up red brick arch can be seen in the wall to the east of this area and leads in the most northerly of the greenhouses. To the rear of Purser House a yellow brick extension has been added along with an exterior staircase which acts as a fire exit. No features of archaeological interest were noted.

15.3.3.3 Area 3

This area to the north west of the development site is composed of large well-spaced trees. A compost heap used by the Botanic gardens is situated in the north east of the area up against an old wire fence, which divides area 2 from area 3. In the extreme north west of the area is situated a small 19th century one storied house with a small outhouse. Beside this house located in the western boundary wall is an old ornate wooden gate with decorative iron panels. A gravel drive runs from this gate up to Purser House. Nothing of an archaeological derivation was noted.

15.3.3.4 Area 4

To the west of Purser House is a flat, large, open expanse of grass stretching as far as the perimeter wall to the west of the property and to the tarmacadamed entrance drive to the south. To the north of this area large trees gradually encroach on the grassy area. The tarmacadam area outside Purser House is slightly raised above the grassy area to the west and runs south to join the entrance drive. To the south of Purser House and west of the extension which joins Purser House to Trinity Hall is another flat grassy area which stretches to the west as far as the raised tarmacadam drive. There is no sign of any archaeological features within Area 4.

15.3.3.5 Area 5

The area to the west of Area 5 is bounded by a stone perimeter wall and is used as a football pitch. There are two tarmacadam tennis courts in the south east of the area. In the north east of the area an earthen bank is covered with numerous large trees and dense undergrowth. Beneath one of these trees is a small flat roofed red brick pavilion, which overlooks the tennis courts and football pitch. No obvious archaeological features were noted.

15.3.3.6 Area 6

To the west of both Trinity Hall and Greenane House are tarmacadamed areas that are used as car parks. A modern red brick extension to the back of Trinity Hall forms a small courtyard. The modern building has a glass frontage to the south and east. The courtyard is paved with square concrete slabs. In the south east corner of area 6 there is a small walled well kept garden with a tarmacadam drive to the north. No features of an archaeological nature were noted.

15.3.3.7 Area 7

The south east corner of the site is occupied by a modern red brick L-shaped building called Cunningham House. It has three storeys and is built in the same style as the extension to Trinity Hall There is an entrance foyer at the meeting point of both arms of the L To the south of this building a gravel car park and a bicycle shed are bounded by the old perimeter stone wall In the semi-enclosed area created by the L-shaped building there is a flat, well-kept grass lawn To the north of this area a small hedge demarcates the lawn from an area with medium size well-spaced trees This area extends to the stone wall that surrounds the Botanic gardens, which can be accessed through a gate in the wall Nothing of an archaeological derivation was noted.

15.3.3.8 Observations of borehole extractions

Archaeological monitoring of 17 engineering boreholes has taken place over the whole site. Boreholes 1, 2 and 3 are in the vicinity of the destroyed site of Rathmines Castle. The first 2 metres of soil in borehole 1 consists of gravelly clays, no archaeologically derived soils or features were noted. Borehole 2, north-east of Trinity Hall, produced some brick in the top 1 metre of soil. This could have been derived from many sources including the construction of Purser and Trinity Hall borehole 3, east of Purser House produced some cobbles in the top 2.8 metres of soil. This material may have some archaeological significance. A report on these results will be submitted to *Dúchas*, the Heritage Services.

15.4 Predicted Archaeological Impacts

The area of archaeological interest for the destroyed site of Rathmines Castle (DU022:087) is partly within the development boundary for Trinity Hall. Although the historical references are contradictory as to the exact location, this is the location upon which most of the authorities agree and to which the Heritage Service has assigned the SMR number.

The three 19th century houses, Purser House, Trinity Hall and Grenane, two of which are listed for protection on List 2 of the 1998 Dublin City Draft Development Plan, are to be incorporated into the development proposal, this is addressed in Chapter 14 – Architectural Heritage.

15.5 Mitigation Measures

Archaeological monitoring of engineering boreholes has taken place over the whole site some archaeological activity was encountered. A full report on the borehole monitoring will be submitted to *Dúchas* - the Heritage Services.

All top-soil stripping at construction stage, in the vicinity of the castle in the north-eastern section of the development site will be monitored by a licensed archaeologist. This will ensure that in the event of archaeological material being revealed, the full significance and appropriate level of recording will occur. The final design of the project does not however envisage any material change to the grounds or standing buildings in the north-eastern section of the site.

The appropriate sections of National Monuments Legislation (1937-1994) state that in the event of the discovery of archaeological finds or remains, *Dúchas, The Heritage*

Service of the Department of Arts, Heritage, Gaeltacht and the Islands and the National Museum of Ireland should be notified immediately The developer is required to allow and fund the any archaeological works which may be needed on the site Adequate financial provision should also be made available for related post excavation work which would include conservation of artefacts and the publication of archaeological testing and excavation results

TCD will comply with the relevant sections of all National Monuments Legislation at all stages of the project All recommendations regarding possible archaeology on the site will be subject to discussion with and approval from the Planning Authority and *Dúchas*, the Heritage Service

REVISED
ENVIRONMENTAL IMPACT STATEMENT
FOR

STUDENT RESIDENCES

AT

TRINITY HALL, DARTRY

Prepared for:-

University of Dublin
Trinity College Dublin

By:-

Environmental Impact Services Limited
6 Merrion Square
Dublin 2

OCTOBER 1999

1 Introduction, Background and Scoping

This project is being carried out by the University of Dublin, Trinity College Dublin. By law, the type and size of the project means that an environmental impact statement (EIS) must be carried out, which means that a specific range of topics (see headings 5 to 15 below) must be covered. These are general topics so before the study began the major issues and concerns were identified, as set out below.

2 Scoping

Scoping is the process of identifying the significant issues which should be addressed by a particular EIS. In this case the key issues were identified as follows:

- effects on the landscape;
- effects on traffic;
- effects on archaeology;
- effects on architectural heritage;
- socio-economic effects due to increased site population; and
- construction effects on noise, air quality, traffic, flora and archaeology

3 Alternatives Considered

A range of alternative proposals were developed during the design evolution process. A representative sample of these is presented in the EIS with discussion of each, explaining key reasons for the selection of the preferred option.

4 Project Description

The development involves the construction of 3 new buildings with a total floor space of approximately 25,000 m² on a site of 2.67 hectares. It will also entail the refurbishment and renovation of the main existing building, Trinity Hall. The removal of a gate lodge, and a modern link building, a three storey annex to Trinity Hall and a glazed lobby to the sports centre will also be implemented in the proposal. The existing site population of 180 will be increased to 946.

Support facilities such as laundry, security, refuse collection and administration will be provided, along with a 400 seater dining facility – all located at a new central facilities building, no. 1. Works to Trinity Hall will mainly involve the provision of dining facilities.

Substantial landscaping will also be undertaken, including the removal of existing trees, planting of new trees and creation of new landscaped open spaces within the development.

5 Human Beings

The effect of the project on the socio-economic environment has been examined. The main effect of the development will be a term time population increase of approximately 900 people. Up to approximately 300 jobs will be created during construction, falling to 14 when the development becomes operational.

Local facilities including shops and pubs are likely to benefit financially from the increased population.

6 Flora and Fauna

The site has generous mature planting including a botanic garden with an associated collection of non-native trees. These trees have a significant teaching role for Trinity College, which may be lessened as a result of the development.

The chief ecological value of the site is its attraction for birdlife and the impact on the local bird population is likely to be locally significant initially but bird populations will adapt quickly to the new environment created by the proposed development.

The aesthetic value of the site's trees is discussed under the heading of *Landscape.*

7 Soils

The development will entail the loss of a large area of relatively undisturbed soil in an urban context. This is a minor adverse impact with little significance outside the site.

8 Water

The on-site water drainage regime will be altered by the construction of new buildings and hard paved areas, thus increasing surface runoff generation. All runoff will be passed through oil and grit traps and retained in a new water feature for discharge at a controlled rate to an existing Corporation drain adjacent to the site.

9 Air Quality

There will be no significant impacts on air quality during the operation of the new accommodation.
During construction there is potential to generate some nuisance, principally because of dust. The mitigation measures contained in the EIS will ensure that such nuisance is minimised. These measures include water spraying of some on-site areas to suppress dust and general adoption of best practices in construction site management to avoid dust generation.

10 Noise

The potential noise impact of the proposed residential development at Trinity Hall has been assessed as follows.

Existing background noise levels at night time are 41 dB(A). Night-time noise emissions from building services could potentially have a noise impact. By limiting external noise sources to a sound power of 78 dB(A) L_{WA} per building, there will be no noticeable increase in night-time background noise levels.

The operational development will have no traffic noise impact on nearby residents.

During the construction phase, noise levels of 60 to 65 dB(A) may be experienced at nearby houses. This would be a tolerable noise level for the limited duration of the construction phase. Construction traffic will increase noise levels at houses on routes to the site by 1 dB, which is not significant.

11 Landscape

There will be a significantly different appearance to the area opposite Sunbury Gardens. This will be localised and opinions and preferences will vary on the subject. Elsewhere the visual impact will be substantially mitigated by the retention of a perimeter screen of mature trees. There will be increased visibility on winter evenings when light will show through the trees. In summer the foliage will screen the majority of the development from view – except from the entrance area.

12 Traffic and Transportation

Due to the low rate of car usage by students and the adjacent Dartry Road, a primary north-south radial, vehicular traffic due to the completed development will be insignificant

The main potential traffic impact is due to road dirtying and spillages during construction. Mitigation measures that will minimise such impacts are proposed.

There will be significant additional demand for seats on adjacent bus routes during the a.m. peak which it is envisaged can be met through arrangement with Dublin Bus. In the medium/longer term it is anticipated that the proposed LUAS Light Rail system will accommodate much of the demand for public transport.

Over 180 on site car parking spaces will be provided in the new scheme for the total population, along with over 400 bicycle parking spaces and cyclists will have direct access onto Palmerston Park.

13 Material Assets

There is existing infrastructure (electricity, gas, telecoms etc.) for all services in the site vicinity. All service providers have indicated that they can accommodate the demand from the proposed development. Cooking and heating throughout the development will be gas fuelled.

14 Architectural Heritage

There are three mid-Victorian houses on the site, namely Trinity Hall, Purser House and Grenane House, all of which are listed in Dublin City Development Plan 1999. There are two non-listed gate lodges.

A circa 1920s annexe to Trinity Hall will be demolished to facilitate construction of a new building and one of the gate lodges will be removed to allow for the re-aligned main entrance and avenue. A link building of no architectural importance, connecting Purser House and Trinity Hall, will also be demolished, along with a three storey annex to Trinity Hall and a glazed lobby to the sports centre.

There will not be any significant impacts on the architectural integrity of any of the listed buildings.

15 Cultural Heritage

The site of Rathmines Castle (a C17th mansion) is thought to be at the north eastern corner of the site. This site is recorded in the National Sites and Monuments Record and in the current Dublin City Development Plan.

The Battle of Rathmines (1649) took place in the area.

Field inspections during the preparation of this EIS revealed no obvious archaeological features.

The proposed development does not include any building in the area of the recorded site of Rathmines Castle. The EIS proposes a number of measures to monitor the construction stage in order that any unknown features be checked for and should anything be noted, commitment is given to the adoption of appropriate procedures.

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Chapter 1 – Introduction

1.1 Introduction and Terms of Reference

Murray O Laoire Architects (MOLA) have been commissioned by Trinity College Dublin (TCD) to design a scheme for the redevelopment of their student residences at Trinity Hall in Dartry. MOLA have employed specialist sub-consultants Environmental Impact Services Limited (EIS Ltd.) to prepare the Environmental Impact Statement (EIS) required for this scheme.

The revised EIS is being submitted to the Planning Authority as part of the revised planning application documentation. The objective of the EIS is to determine the impacts of the proposed development on the environment and where adverse impacts are identified - to propose measures to avoid, reduce or remedy them.

1.2 Legislation

Environmental Impact Statements (EIS's) are carried out in response to the requirements of the European Community Council Directives of 27th June 1985 and 3rd March 1997, on the assessment of the effects of certain public and private projects on the environment (85/337/EC and 97/11/EC). The enabling Statutory Instruments which transpose 85/337/EC into law in Ireland are European Communities (Environmental Impact Assessment) Regulations 1989 to 1999, with the main legislation being Statutory Instruments 349/89 and 93/99. These regulations generally set out the types of projects which must be subject to EIA and the format and contents of EIS's.

Article 24 of the Local Government (Planning and Development) Regulations 1994 provides for the prior carrying out of an EIA for any development of a class specified under Article 24 of S.I. 93/999. The proposed development now[1] falls within the class of development types under *Article 24, First Schedule, Part II, Section 10 (Infrastructure Projects) (b)(i) – Construction of more than 500 dwelling units and (b)(iv) urban development projects which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built up area, and 20 hectares elsewhere.*

Whilst the total site area of Trinity Hall is 4.27 hectares, the proposed development covers an area of approximately 2.5 hectares of this site. Trinity Hall lies within "a built up area" therefore the redevelopment falls substantially below the 10 hectares mentioned above and the EIS is being prepared on the basis of "construction of more than 500 dwelling units."

The information to be contained in an EIS is set out in the second schedule of Article 25 of S.I. 93/99. The content of this Environmental Impact Statement conforms with the relevant requirements as specified in Article 25 of the

[1] When the original planning application was made to the Planning Authority the EIA legislation which applied to the development was S.I. 349/89. This made provision for an EIS to be carried out for *"an urban development project which involved an area greater than…2 hectares in an existing urban area."*

abovementioned EIA Regulations. This EIS has furthermore been undertaken having regard to the Environmental Protection Agency's *Draft Guidelines on the information to be contained in Environmental Impact Statements* (EPA 1995) and *Advice notes on Current practice in the preparation of Environmental Impact Statements* (EPA 1995).

1.3 Consultation

The following bodies were consulted in the preparation of this report:

- Dublin Corporation
  - Planning, Parks, Roads and Traffic and Environment Departments
- Dúchas The Heritage Service – Sites and Monuments Records
- Trinity College Dublin
- An examination of previous planning files for the area was undertaken to determine sensitivities of local residents towards development proposals in the Dartry area.
- A public exhibition of the original proposed scheme took place on 11th May 1999 at which residents views were made known to the design team.
- An examination of the objection letters submitted in response to the lodgement of the planning application was undertaken in order to take account of the views of local residents towards the proposed development. The scheme was substantially modified in response to these concerns.

1.4 EIS Format

This EIS follows a grouped format structure. Using this structure the EIS is prepared in a format which examines each environmental topic (as prescribed by the regulations) as a separate chapter. Each of these separate chapters refers to: -

- The proposed development
- The receiving environment
- Likely significant impacts
- Mitigation measures
- Residual impacts (where applicable)

The EIS addresses each of the topics specified by the EIA Regulations as follows:-

EIA REGULATION TOPICS	EIS CHAPTER TOPICS
Human Beings	Human Beings
Flora	Flora and Fauna
Fauna	Flora and Fauna
Soils	Soils
Water	Water
Air	Air Quality Noise
Climate	Air Quality

Landscape	Landscape
Interaction of the foregoing	Within each topic as appropriate
Material Assets	Traffic and Transport Material Assets
Cultural Heritage	Architectural Heritage Cultural Heritage

1.5 Study Team

The study team used for preparing this EIS was as follows:-

Role	Personnel
Study Director	D Conor Skehan
Study Manager	Paul Fingleton
Specialist Topics	
Human Beings	Brendan Allen
Flora and Fauna	Roger Goodwillie
Soils	D Conor Skehan
Water	Paul Fingleton
Air Quality	Michael Bailey
Noise	Colin Doyle
Landscape	D Conor Skehan David Murphy (Visualisations)
Traffic and Transport	Brian Mc Cann
Material Assets	Paul Fingleton and Brendan Allen
Architectural Heritage	William Garnermann
Cultural Heritage	Margaret Gowen and Co. Limited

1.6 A Note on Quotations

Environmental Impact Statements by their nature contain statements about the proposed development, some of which are positive, and some are negative. Selective quotation or quotations out of context can give a very misleading impression of the findings of the study. The study team urge that quotations should where reasonably possible be taken from the conclusions of specialists' sections or from the non-technical summary and not selectively.

1.7 Statement of Difficulties Encountered

It is a requirement of the EIA Regulations to include a statement of the difficulties encountered in preparing the EIS, particularly any involving data deficiency.

The main difficulty which occurred in preparing this revised EIS relates to the fact that a final design was not available until very close to the lodgement date. The design changes resulted from environmental concerns about the initial proposed design. The quantities of materials and construction traffic figures which are used in this EIS are based on a worst case scenario of a larger building. It is estimated that the quantities of materials and construction traffic figures supplied to EIS Ltd. by the design team and used in calculations

are likely to be approximately 3-5% lower, as a result of the design changes and environmental impacts are likely in some cases (mainly construction traffic and quantities of natural resources used) to be marginally less than those stated in the EIS.

Chapter 2 – Scoping

2.1 Introduction

Scoping is a process which determines the likely issues that need to be examined in an environmental impact statement. The determination of issues to be examined in this EIS arose from :-

- Site visits and local investigation
- Consultation with Dublin Corporation
- Consultation with the Sites and Monuments Records Office
- Experience with previous EIS's and the requirements of the Regulations
- Examination of objections to the proposed development

The preparation of this EIS also had regard to the Environmental Protection Agency's *Draft Guidelines on the Information to be contained in Environmental Impact Statements* (EPA 1995) and *Advice notes on Current Practice in the Preparation of Environmental Impact Statements* (EPA 1995).

A scoping document which was submitted to and agreed with Dublin Corporation, identified the following issues to be examined in the EIS.

2.2 Scoping Document for Trinity Hall (as agreed with Dublin Corporation)

1. Introduction

- *Background and terms of reference*
- *Legislation*
- *Study team*
- *Determination of scope*
- *Consultation*
- *EIS format*
- *Difficulties encountered*
- *Handling of interactions between topics*
- *Quotation usage*
- *Acknowledgements*

2. Project Description

- *General proposed outline*
- *Demolition of buildings*
- *New buildings on site*
- *Phasing of the project*
- *Provision of services*
- *Construction plans*

3. Consideration of alternatives

- *Terms of reference*
- *Do nothing alternative*

- *Alternative locations, layouts and designs*
- *Consultation*

4. Human beings

- *Demography of the area*
  - *The substantial increase in the 18-24 age group in the area may cause a change in the character of the local area, which is a mature residential suburb*
- *Impacts on the amenity of the surrounding area*
  - *The loss of a green wedge may result in a loss of amenity*
- *Employment generated by the development during construction and operation*
  - *The development is likely to create substantial employment of all types (construction, administration, security etc.) This is likely to be spread throughout the Dublin area.*
- *There also likely to be substantial extra spending in local shops the area*
- *Increase in traffic (vehicular, cycles and pedestrian) as a result of construction and occupancy of accommodation*
- *The impacts on local residents during demolition and construction*
- *Impacts from the large influx of "students" on the amenities of the area such as pubs, shops etc.*
- *Public transport*
  - *There may be a necessity to improve public transport to Trinity College due to a large increase in potential users*

5. Flora and fauna

- *Habitat evaluation*
- *Protected or important species*
  - *There are no statutory designations on this site*
- *Current trends on site*
- *Construction impacts*
- *Operational Impacts*

6. Soils and water

- *Surface and groundwater*
  - *There is likely to be a large requirement for water and subsequent effluent disposal due to the large site population. Due to hardsurfacing of areas which presently absorb water, there is likely to be an increased quantity of surface water to be disposed.*
- *There are no streams on site*
- *Interaction with flora and fauna*
- *The increase in surface water may cause significant impacts depending on the findings of the above section*

7. Air Quality

- *Atmospheric emissions*
  - *Emissions such as dust could arise at the construction phase, this could lead to adverse impacts on air quality*

- *Odours*
  - *As a result of the restaurant, self catering and laundrette, there may be a significant increase in odours in the surrounding area*

8. Noise

- *Noise during construction*
  - *This may be significant due to demolition of existing buildings and construction operations such as pile driving and general construction activities.*
- *Noise during use*
  - *The tenfold increase in population is likely to give rise to increased noise on the site. This will be especially so if events (social or sporting) are taking place as large amounts of young people will congregate in one place.*

9. Climate

- *Microclimatic effects*
  - *Change in local climatic factors such as wind and temperature as a result of new buildings.*

10. Landscape

- *Context of the site*
  - *The site is set in the mature residential suburb of Dartry. Adjacent to a local park and tennis club. There are only a few buildings on the site at present so the whole block forms a large "green wedge" in a area with medium density housing.*
- *The appearance of the proposed development*
- *The proposed development will occupy an area which is currently a green space which contains playing pitches. It also contains a significant amount of mature trees.*
- *Relationship between the proposed development and the existing landscape*

11. Cultural heritage

- *Archaeological heritage*
  - *Trinity Hall was once the site of Rathmines Castle therefore it has important historic associations*
- *Archaeological potential*
  - *There may be high potential for discoveries during excavations as the Rathmines / Rathfarnham area is rich in archaeology*
- *Architectural heritage of the buildings and gardens*
  - *Pursar House and Trinity Hall are List 2 buildings in the 1998 Draft City Development Plan. Any direct or indirect impact on these will need to be examined.*
  - *Impact on the context of Grenane House and Esterel House may need to be examined*
  - *As some of the buildings and gardens are over 100 years old there may be some features worthy of preservation in the proposed development*

12. Material assets

- *Traffic volumes*
  - *Construction traffic is likely to be quite significant. This is likely to create impacts on local roads especially if development takes place in one phase.*
  - *Extra traffic will be generated as a result of the proposal. Currently there are only 170 students on site so the proposal to increase this to approximately 1100 will create significantly more traffic movements. It is likely that a large proportion of "students" will cycle and use public transport but there will still be a large number of cars accessing the site.*
- *There will be a large number of service vehicles making deliveries to shop, restaurant, laundrette etc.*
- *Parking of cars, bicycles and construction vehicles*
- *Impacts on services such as water supply, power, waste disposal and telecommunications.*
- *Volumes of waste to be disposed are likely to be significant as a result of the large population to be accommodated in the development.*

It should be noted that the scoping document is not prescriptive because issues may arise during the Environmental Impact Assessment process which are not considered to be of any significance and are therefore omitted, or new issues not identified in the scoping phase may emerge.

Chapter 3 – Alternatives Considered

3.1 Introduction

It is a requirement of the EIA Regulations that before looking at the impacts of any development on the environment, an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects[1] should be given. This section describes the process in the case of this project. Each of principal options is described in terms of the main elements and the opportunities and constraints posed by each option. Figures 3.1 to 3.7 show the principal elements of each option in sketch format for illustrative purposes.

3.2 Demand for additional accommodation

Trinity College Dublin (TCD) currently caters for a population of approximately 12,000 students. 50 – 55% of this student population is from outside Dublin and therefore requires rented accommodation in the Dublin area. TCD currently provides a maximum of 1,000 student accommodation rooms (in TCD and Dartry) which shows that there is an obvious shortage of student accommodation. Present estimates for first year students alone indicate a demand in excess of supply by a factor of 3 for rented accommodation.

Recent market trends in the property market which have contributed to the shortage of student accommodation include the following :

- reduced availability of accommodation which is compliant with the regulations for private rented accommodation
- increase in property prices and rents
- TCD policy of encouraging student applications from rural areas, overseas and Northern Ireland
- Difficulties for students in obtaining 9 month leases for private accommodation in current market conditions

TCD envisages that the new development at Trinity Hall will assist in relieving the pressure of current and forecast demand for student residences. The development is in line with Higher Educational Authority policy which promotes such ventures by actively encouraging the funding of such through a series of initiatives within the Government Finance Bill 1999.

3.3 Options available to TCD

3.3.1 Do Nothing Scenario

This option involves no new developments on the site. It is likely that the site would continue to be used for student accommodation with the number of students accommodated on site remaining at approximately 180. The open space on site would continue to be used by residents of Trinity Hall for recreational activities. TCD would be unable to provide additional accommodation for students who would have to continue to seek private rented accommodation.

[1] EIA Regulations 1999 (S.I. 93/99), Article 25 Second Schedule 1(d)

3.3.2 Alternative Locations

TCD owns a number of properties within its property portfolio, which were all examined in choosing Trinity Hall for the development. Suitable capacity does not exist on any site other than Trinity Hall for a development of this nature. The advantages of choosing Trinity Hall for this development include :

- it already houses significant student accommodation and has successfully operated in this manner for many years
- it provides students with accommodation within a reasonable walking and cycling distance of both the city centre and suburbs
- it is in close proximity to the proposed LUAS line which will provide frequent light rail services to the city centre

3.4 Alternative Layouts

This section gives an outline of the main options considered for Trinity Hall redevelopment and the main reasons why one option was deemed to be more advantageous over another. This section is not an exhaustive examination of all options, but presents a representative sample of the main options.

3.4.1 Option 1

Option 1 represents the scheme at the beginning of the project when the project brief to develop the site was circulated at the interview stage. At this point it was envisaged that Botany would be relocated to the south-west corner of the site thereby creating two open courts to the front of each main block, each of which could contain a tennis court. A new college court was to be created where Botany had previously been and the completion of a fourth courtyard at the corner of the student residential block at Cunningham House was also proposed. Environmental information such as information on mature trees, archaeology, topography and landscaping was limited at this stage and Option 1 only took cognisance of known site characteristics. (See figure 3.1)

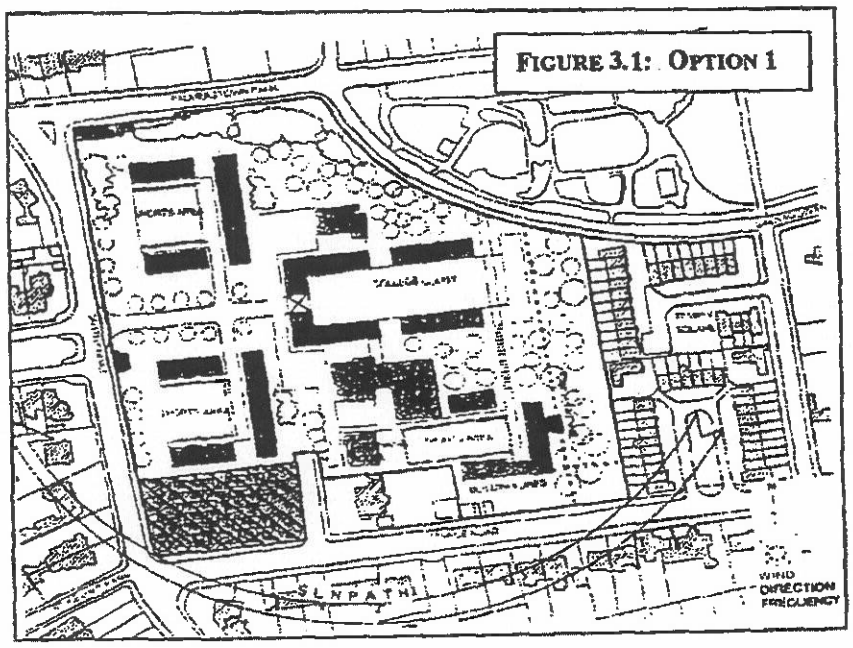


FIGURE 3.1: OPTION 1

3.4.2 Option 2

Option 2 followed from on from the evaluation of Option 1. In this scheme, the residential courtyards to the front were developed so as to enable three or more apartments to be serviced from a single core. This is a more economic and viable option with regard to the development potential and economics of the site. At this stage the suggestion of a main college plaza to the front of the existing listed buildings was looked at for the first time. In common with Option 1 the organisational accesses remained in place, with the new avenue picking up the accesses of Sunbury Gardens (opposite the proposed entrance) being retained as the key element of the development. Once again environmental information was limited at this stage of development. Option 2 was mainly concerned with achieving economies on the site and took little account of environmental considerations. (See figure 3.2)

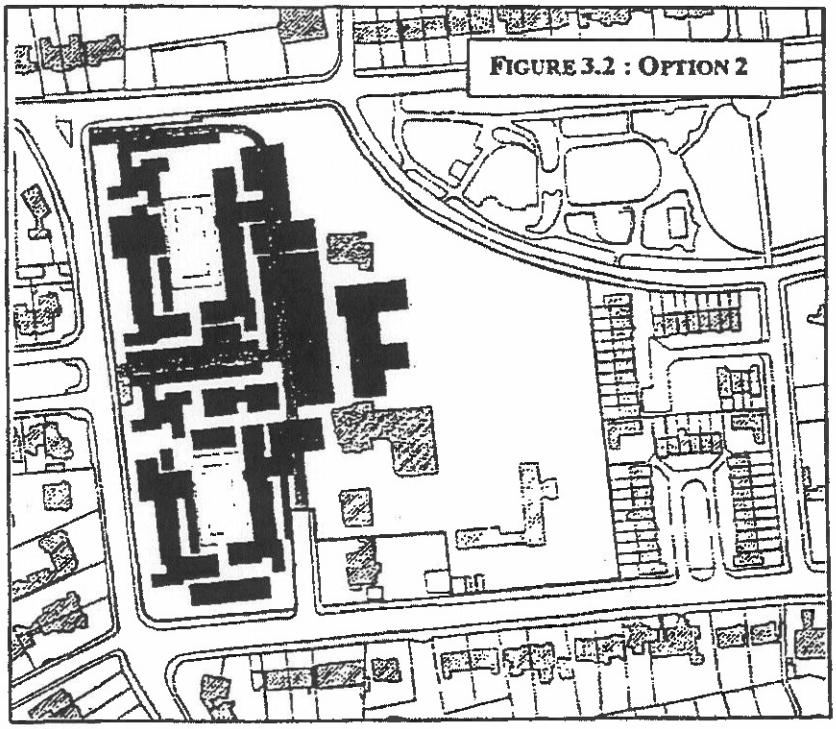
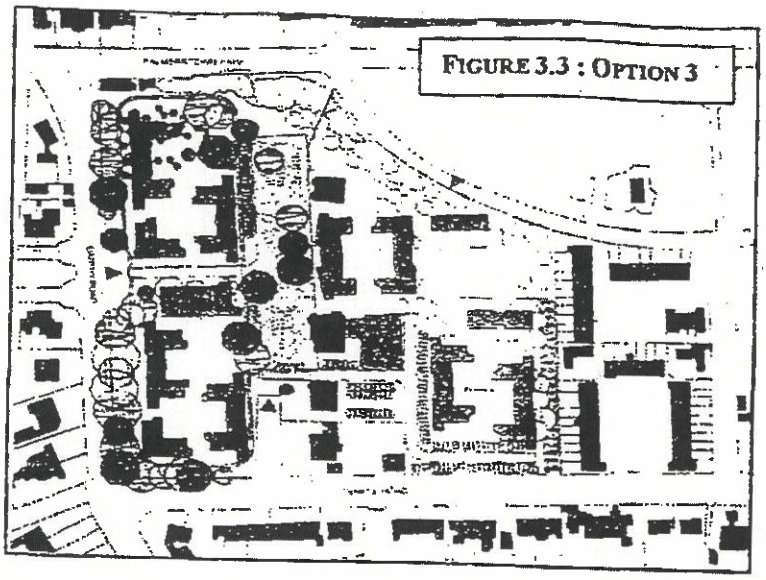


FIGURE 3.2 : OPTION 2

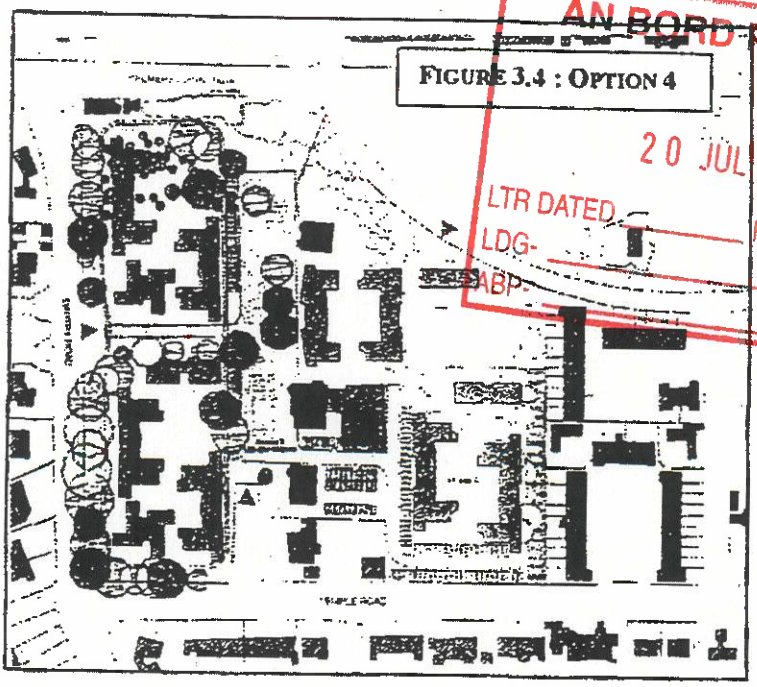
3.4.3 Option 3

This option looked at the overall site as more environmental information became available. It retained Botany in its current location but looked at possibly redeveloping it along with the overall redevelopment of Cunningham House. At this stage adequate tree survey information had been obtained and the location of mature trees impacted on design of the scheme. The scheme developed into four courtyards of smaller scales to the front of the site which were generated by a more accurate building footprint, in keeping with the scale of apartments required by TCD. Once again the former college court to the front of the listed buildings had been retained, along with the access of Sunbury Gardens. At this point a number of trees were shown to be removed and the main gatelodge was to be located to the south of the avenue. (See figure 3.3)



3.4.4 Option 4

This was a further development of Option 3 where a cruicaform block was used as an entrance. The avenue of trees along the main entrance which was considered for removal as part of Option 3 were now retained. However, the nature of the courtyard spaces in this scheme was deemed to be less than successful and the context of the listed buildings was poorly addressed by this option. At this stage, the approximate location of the site of Rathmines Castle was known to be in the north-west corner of the site and the modified design ensured that this area would not be developed for buildings. (See figure 3.4)



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3.4.5 Option 5

In Option 5 the disposition of the buildings was reviewed. The entrance building located behind the main avenue of trees was removed in this option. At this point the issue of surface water retention on the site was addressed and a water feature along the avenue was introduced. The main avenue

building was examined in more detail with a view to creating a central pavilion flanked by the two listed buildings and using this pavilion as a central reception / facilities area on the ground floor with large twin rooms and mixed apartments above. Two further pavilions (buildings 9 and 10) were introduced along the side of Palmerston Park. The scheme was organised along the main entrance avenue which arrives into a civic / front square space. Four courtyards were created to the front of the scheme, two of which are enclosed by buildings and two of which are edged between landscaping and buildings. This option took account of environmental sensitivities, as detailed information on most environmental topics was available to the designers at this stage. (See figure 3.5)

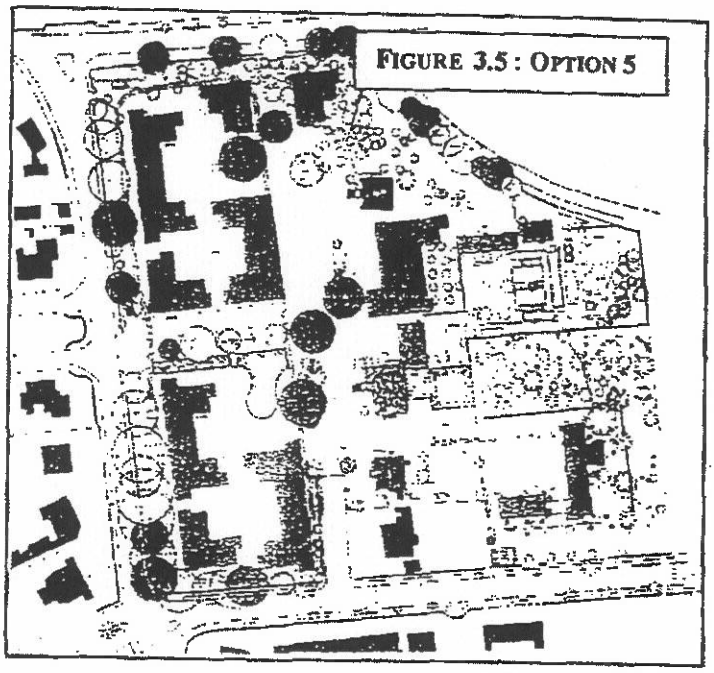


FIGURE 3.5 : OPTION 5

3.4.6 Option 6

This option is a further development on Option 5. This option was the original preferred option and was the one submitted to the Planning Authority. It is an option which addresses many of the environmental sensitivities as account has been taken of the detailed environmental information which was available especially in relation to the mature trees. This option pulls the buildings back from the mature trees on Dartry Road and also gives greater space to the main civic space, it provides a better environmental and architectural context for the listed buildings. Building nine has been amalgamated with what was formerly Building two in previous options. Building ten has been slightly rotated to give a better architectural context to Grenane House. Three trees adjacent to building nine which are deemed to be in poor condition will be removed by this option, which allows the building to rotate therefore creating a better courtyard. This option allows for a crescent shaped access from Dartry Road opposite the junction with Sunbury Gardens. The avenue of trees in Sunbury Gardens is continued along the Trinity Hall entrance avenue and is seen as creating a strong urban space leading through into the main complex. (See figure 3.6)

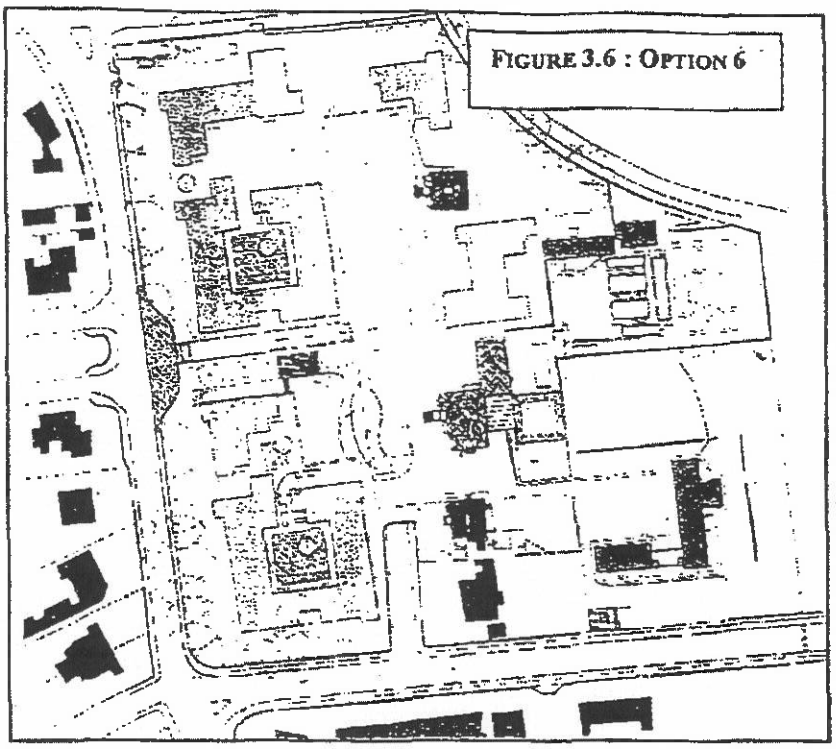


FIGURE 3.6 : OPTION 6

3.4.7 Option 7

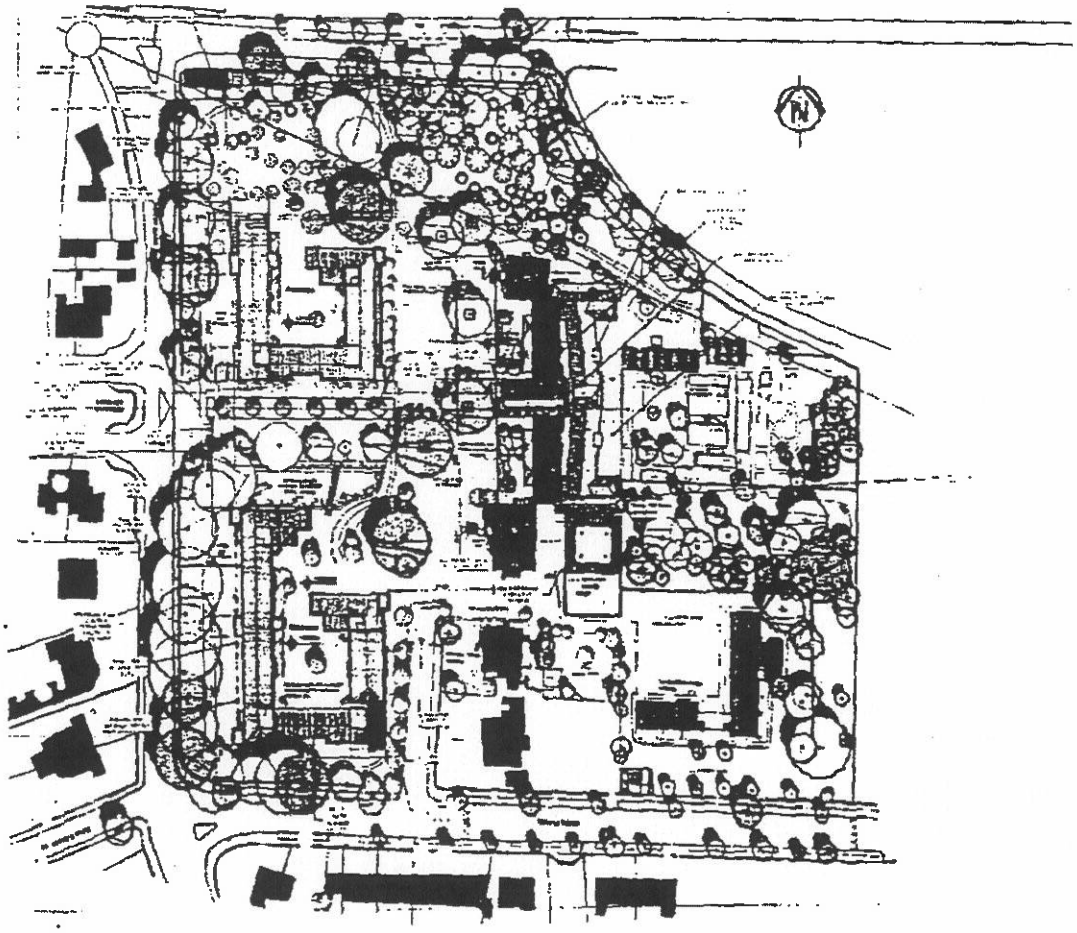
This option is a further refinement of Option 6 and a better site layout. Following objections when Option 6 was submitted for planning approval and concerns of the Planning Authority, the developers in accordance with Article 35 of the Local Government (Planning and Development) Regulations, have been invited to submit a modified plans for the development.

The principal differences and improvements between Option 6 and 7 are as follows:

- Buildings 2, 9 and 10 at the north of the site near Palmerston Park have been taken out of the scheme. This has made it possible to preserve a much larger number of trees around the northern perimeter of the site which allows for much greater screening of the buildings.
- Building 3 has been substantially modified to create a smaller building. A portion of the building to the north has been taken out of the scheme. This has resulted in the loss of approximately 60 bedspaces. As a result of this reduction, the building as viewed from the corner of Palmerston Park/Dartry Road is substantially less visible and is will be screened by existing and proposed trees. In addition to the reduction in size, the building line has been set further back from Dartry Road which has resulted in retention of the running track and a greater area of open space.
- Building 5 has been taken out of the scheme which has allowed retention of mature trees at the entrance.
- In removing Building 5 it has been possible to create an attractive water feature along the entrance driveway, which was not possible in Option 6. This feature serves as both an attractive landscaping feature and a water retention pond for stormwater discharges.
- Building 6 has been enlarged to create a courtyard. The building line has been set back further from Dartry Road with the upper stories reduced in

height at both the south and west. Setting this building further back has resulted in retention of the green belt at Dartry Road

- A portion of the boundary wall at Dartry Road has been modified to a new transparent railing on a stone plinth.
- Greater protection is being provided for relocated trees in a new railed arboretum along the entrance driveway.
- Hard surfaced areas have been reduced to a minimum in order to preserve as much green space as possible. Car parking spaces for both existing and proposed parking have been broken up and dispersed around the site to reduce the hard surfaced area.
- Building 1 at the centre of the site has been enlarged to accommodate some of the bedspaces which were taken out due to the redesigned scheme. Following advice from Dublin Corporation it was agreed that the centre of the site has the capacity to accommodate a larger building where other buildings are omitted or redesigned.



3.5 Conclusion

Option 7, which is the option being proposed is a substantially modified version of Option 6 and represents a compromise between providing the required number of accommodation units within the project budget and achieving the best design in environmental terms. The design takes greater account of environmental sensitivities than Option 6. Whilst adverse environmental impacts do occur with this option, the mitigation measures proposed will ensure that the impacts are minimised.

Chapter 4 – Project Description

4.1 Introduction

This chapter provides a comprehensive description of the existing site layout, the proposed site layout (in terms of demolition of buildings, refurbishment and renovation of existing buildings and construction of new buildings). It also describes the approximate quantities of materials and natural resources which will be used during construction and the quantities of waste materials, which will require disposal. Finally, an indication of the likely duration of construction activities is provided. In addition to this general project description, each chapter provides a project description based on the environmental topic considered in that particular chapter.

4.2 Existing Site Layout

Trinity Hall is a 4.27 hectare site in the predominately residential suburb of Dartry, Rathgar. Temple Road, Dartry Road and Palmerstown Park bound the site on three sides and Rathgar and Rathmines Village Centres are less than 1 km away. (See figure 4.1). The area is generally zoned residential in the Dublin City Development Plan 1999 while the site itself is zoned institutional.

The lands have been in the ownership of Trinity College Dublin since 1896 and were opened as Halls of Residence in 1908, they are currently still in use for this purpose.

Trinity Hall currently caters for a population of approximately 180 students with rooms distributed through Cunningham House, Trinity Hall, Purser House, Greenane House and the link block between Trinity Hall and Purser House. There are dining facilities provided in a glass extension to the sports hall with servery and kitchens at the lower ground level of Trinity Hall.

There are ten distinct buildings which occupy the Trinity Hall site, which comprise:-

- two single storey gate lodges, laid out as private residences
- Purser House - a 3 storey late 19th Century house used as student residences and listed in List 2 of the Development Plan 1999
- Trinity Hall - a three storey late 19th century house used as kitchens, offices and student residences, also listed in List 2 of the Development Plan 1999
- Trinity Hall Extension - a 3 storey turn of the century annexe building, used as student residences along with an early 20th century 3 storey link building between Purser House and Trinity Hall also used as student residences
- Greenane House- a three storey late 19th century house used as student residences and listed in List 2 of the Development Plan 1999
- a modern 2 storey sports hall, used as a recreational facility
- Cunningham House, a modern 3 storey L shaped building, used for student residences

- A single storey building to the north-east, currently housing the Botanics Department

In addition to the buildings in Trinity Hall, there is a large amount of open space throughout the site. This open space is used for active recreational purposes such as tennis and football, however, it is also used for passive recreational activities. The existing site coverage of buildings is 9% over the total site, with a plot ratio of 0.184. As can be seen by the above figures the current density of development is very low on this site. (See figure 4.2)

4.3 Proposed Site Layout.

It is proposed to redevelop approximately 2.5 hectares of the 4.27 hectare site in order to provide new student residences. The redevelopment comprises approximately 25,000 square metres distributed over 3 buildings and it includes the refurbishment of Trinity Hall which is a listed building. In addition, it involves the removal of two existing buildings; a small gate lodge and a 3 storey annexe/link building between Purser House and Trinity Hall.

The new complex of buildings will provide accommodation for 946 people, an increase of 766 people. The new accommodation will be provided in 832 bedrooms. The bedrooms will be arranged in a combination of twin, single, disabled and staff rooms distributed over 180 apartments with each room sharing common living, dining, and kitchen areas within apartments.

Support facilities will also be provided as part of the redevelopment plan. These facilities include a laundrette, linen stores, workshops, reception areas and a minimarket.

These facilities are located in a central block and will operate specifically to serve the on-site community. The refurbishment of Trinity Hall will provide new dining facilities and common areas capable of accommodating up to 400 diners.

The proposed site layout (See figure 4.3) shows all proposed developments on the site. Details of the proposed demolition, refurbishment of existing buildings and new buildings on the redeveloped site are as follows:

Buildings to be demolished:-

- *Annexe and Link Block* (between Trinity Hall and Purser House)

This is a building of little architectural merit which is currently used for student rooms

- *West Lodge*

This is a single storey gate lodge which will be demolished to facilitate an upgraded road entrance and avenue

- *Lobby of Sports Hall*

This is currently used as makeshift dining facilities. New dining facilities will be provided in the refurbished Trinity Hall.

Buildings to be refurbished:-

- *Trinity Hall* (Listed Building)

This is shown as Trinity Hall in figure 4.3. The annexe to the main building will be demolished allow construction of Building 1. A new atrium will be constructed to the rear of Trinity Hall which will contain dining facilities and Trinity Hall itself will be refurbished.

New Buildings:-

- *Building 1*

Located in the centre of the site, this building will be 5 storeys over ground level, with a 6 storey over ground level spine. It will contain 268 bedspaces and will cover an area of approximately 2,236 sq. m. Central facilities serving the development, including a laundry, linen store, mini-market, reception and housekeeping areas will be provided at ground floor level. These use of these facilities will be confined to residents of Trinity Hall.

- *Building 2*

Located in the north-west corner of the site. This will be a 4 and 5 storey building, with a six storey corner element, covering an area of approximately 7,144 sq. m. and will provide 300 bedspaces.

- *Building 3*

Located in the south-west corner of the site. This will be a 3, 4 and 5 storey building covering an area of approximately 8,658 sq. m. and will provide 377 bedspaces.

The total number of bedspaces to be provided is 945 covering a total area of approximately 24,300 sq. m., including ancillary areas such as kitchens and circulation spaces.

Associated new ancillary works necessary to facilitate the development include a new landscaped square designed for vehicular and pedestrian use; hard and soft landscaped courtyards; new water features; approximately 160 car parking spaces and other landscaping and installations intrinsic to the development. A high level of open space will remain in the redeveloped Trinity Hall.

4.4 Construction and Waste Materials

The development at Trinity will require, inter alia, the construction of a series of three buildings.

To reach the operational stage of the development, the following works will be carried out:

- Site clearance including excavation of subsoil to required levels
- Demolition of existing link building, gatelodge and entrance
- Trenching for underground services including foul sewer, surface water drains, watermains, gas, telecommunications, electricity and lighting

- Connection of proposed underground services to existing underground services
- Construction of buildings
- Construction of roads, footpaths, landscaped and paved areas.
- Erection of boundary fencing, signage and lighting.

The approximate material quantities associated with the redevelopment of Trinity Hall will be as follows:

MATERIAL	QUANTITY
Demolition Rubble	1,200 cu m
Excavation - spoil	20,000 cu m
Concrete	9,000 cu m
Structural Steel	1,250 tonnes
Blocks and Bricks	5,000 cu m

Other materials will include windows, doors, lifts, sanitary fittings and services.

4.5 Construction Period

The overall construction period projected for the project is 20 - 30 months, from site clearance to final fitting out of buildings. It is estimated that site clearance will take about 10 weeks to complete with other activities taking up to 17/18 months.

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FIGURE 4.1
SITE LOCATION MAP

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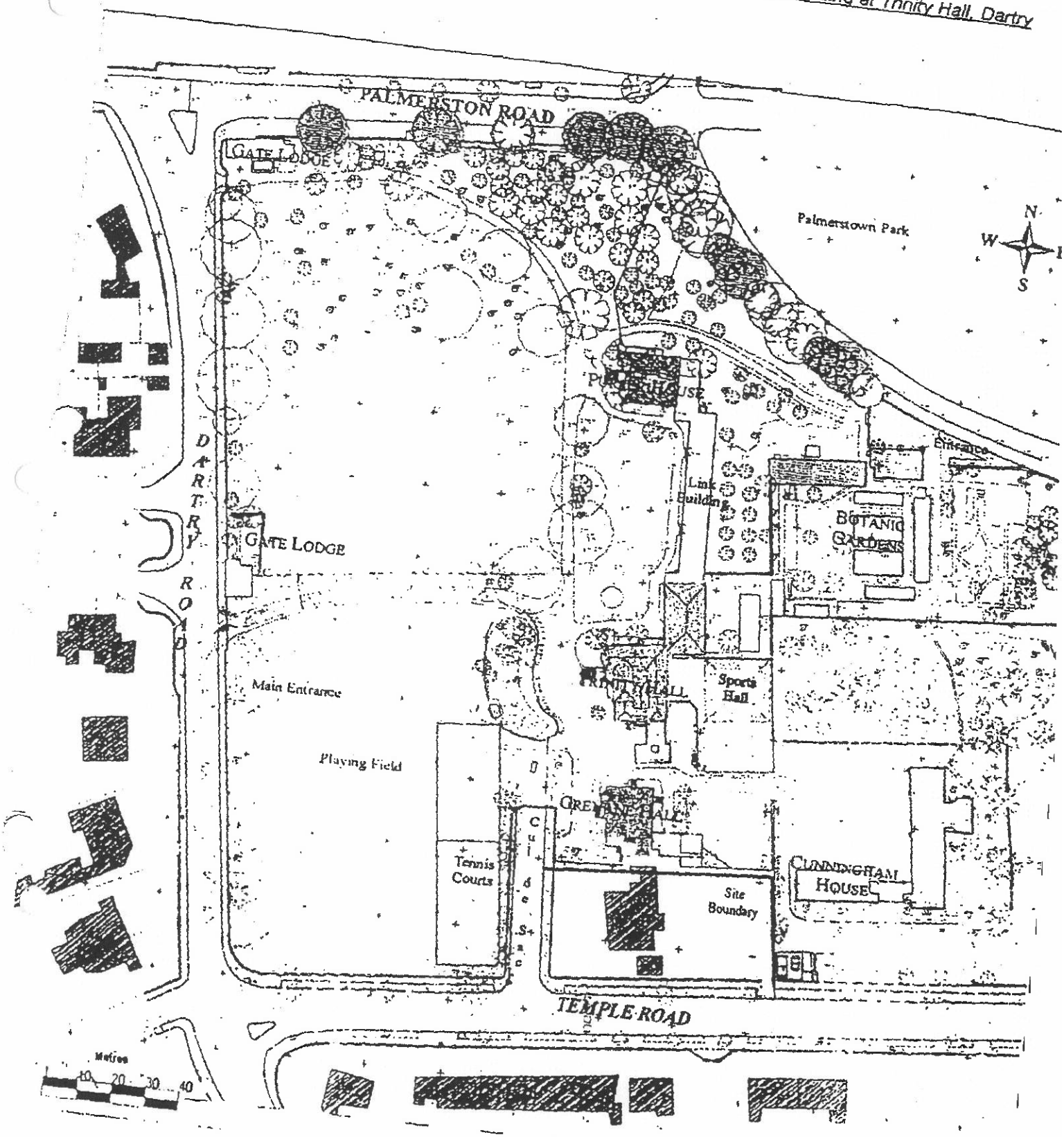

FIGURE 4.2
SITE LAYOUT - EXISTING

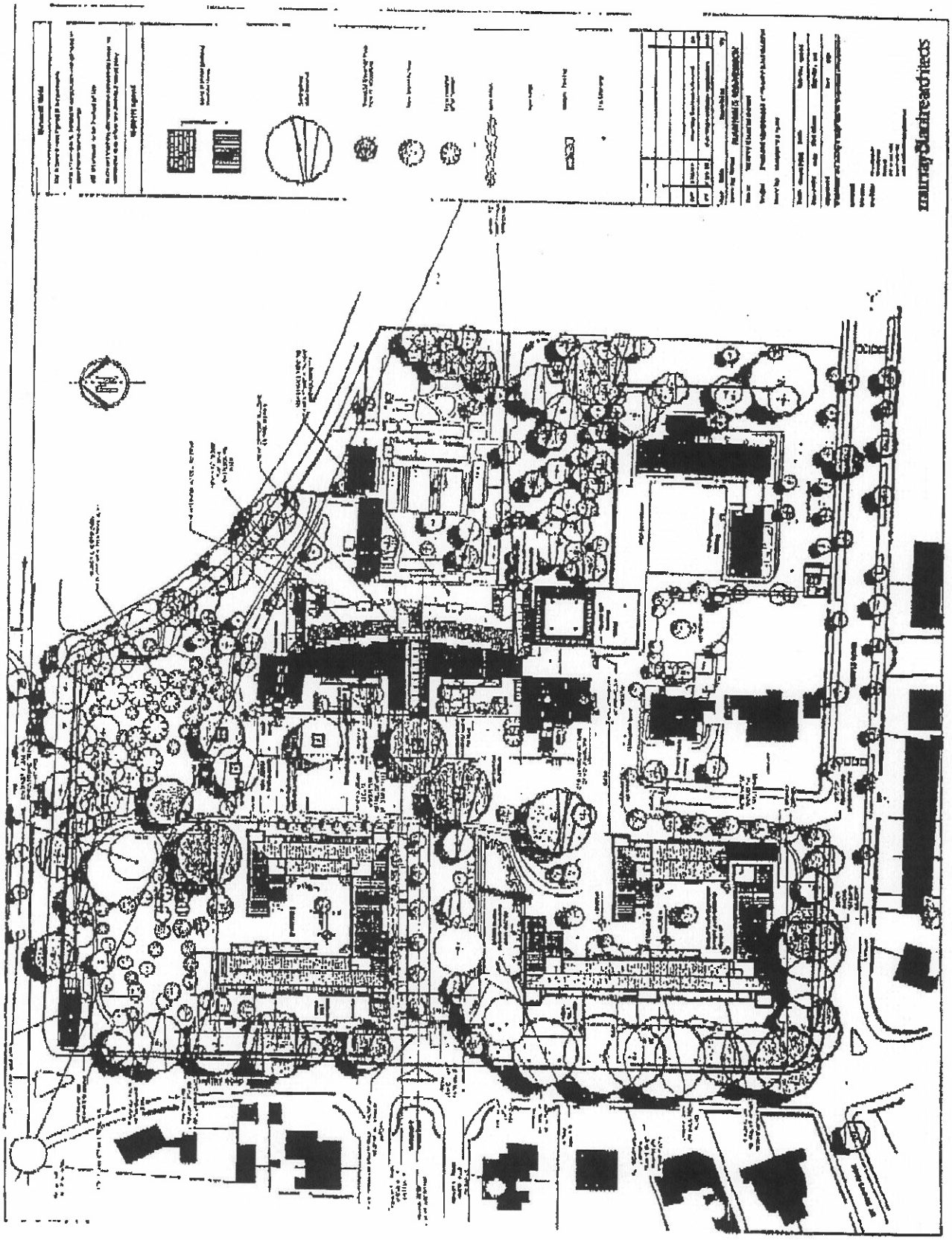

Figure 4.3 Site Layout - Proposed

Chapter 5 – Human Beings

5.1 Introduction

This section considers the significant effects of the proposed development, both during construction and operation, on human beings in terms of socio-economic aspects which include; population change and economic activity, employment generated by the development and the impacts on services and amenities in the area.

The impact on human beings arising from the construction and occupation of accommodation, associated traffic and pedestrian movement in terms of noise, air quality and visual impact is dealt with in other sections of the EIS. The impacts on human beings considered here relate to socio-economic impacts due to construction work and the continuing existence of the development.

5.2 Proposed Development

While the total site of Trinity Hall is 4.27 hectares, the proposed development will cover an area of approximately 2.5 hectares and it comprises of the provision of residential student accommodation totalling 946 bedspaces. There is currently a site population of 180.

5.3 The Existing Environment

5.3.1 Planning and Development Context

The site is situated off Dartry Road in the south suburbs of Dublin City, it is in the administrative area of Dublin Corporation but is adjacent to the administrative boundary with Dun Laoghaire/ Rathdown County Council.

Trinity Hall is a 4.27 hectare site in the well established residential suburb of Dartry in a block surrounded by Dartry Road, Temple Road and Palmerstown Park. Rathgar Village is located 800 metres from the site while Rathmines Village, which is the district centre for the area, is located 1 km to the north of Trinity Hall. Trinity College Dublin, where students living in the student apartments will be attending college, is located in the city centre which is 3.5 km from the site.

The Rathgar / Dartry area is generally zoned residential (Z2) in the Dublin City Development Plan 1999. The subject site is zoned Z12 – *To ensure that existing environmental amenities are protected in any future use of these lands.*

5.3.2 Population

Receiving Environment

In terms of County, Region and State, population is strongly influenced by migration and emigration rates rather that birth and death rates. The mid to late 1980's was a period of heavy population outflow, mainly due to the poor economic and employment situation in Ireland. Population statistics indicate

that there has been a large movement of people into the country due to the current economic boom in Ireland.

Like the state as a whole, Dublin City and County have both experienced considerable population growth, especially in the 1960's and 70's. This growth gave rise to considerable pressure for residential development in both City and County suburbs. From 1961 to 1981, population growth in the City and County was over 39%. This growth declined substantially, mainly as a result of immigration and declining birth rates, to 1.8% between 1981 and 1986. This growth again declined between 1986 and 1991 to 0.4%. The 1996 census shows that population growth in the City and County has increased to 3.1% between 1991 and 1996. It is likely that population growth in Dublin City and County has increased substantially since the 1996 Census was published.

Dublin County Borough South, the area within which the site is located, experienced a significant decline in the period 1981 to 1986, falling by 9.5%. The population continued to decline, by 2.8% between 1986 to 1991, while it increased by 2.7% between 1991 to 1996. These population changes should be seen in the context of substantial increases in the populations of Dun Laoghaire – Rathdown, South Dublin and Fingal during each census period 1981 to 1996.

Population - Wards / DEDs

Population data for the Census Wards / DEDs close to the subject site has been analysed to give an indication of the demographic profile of the area from 1991 to 1996. (See Table 5.1) The site of the proposed development is in the Census Ward of Rathfarnham.

Ward / DED	1991 Census	1996 Census	% Change
Rathfarnham	**4,291**	**4,520**	**5.3**
Rathmines East B	4,273	4,510	5.5
Rathmines East C	3,605	3,571	-1.0
Rathmines West C	2,719	2,686	-1.1
Clonskeagh / Milltown	1,158	1,808	56.1
Clonskeagh/ Farranboley	1,750	1,638	-6.3
TOTAL	**17,796**	**18,773**	**5.3**

Table 5.1 Population Change in Wards / DEDs in the vicinity of the site

The overall population of the Wards / DEDs in the vicinity of the site has increased from 17,796 persons in 1991 to 18,773 in 1996, which is an increase of 5.3% over the five year period. Analysis of the total of these areas over the period shows that the trends in population changes between 1991 and 1996 are similar but slightly higher than those in the State, City and County during that period. The individual Wards and DEDs have experienced considerable variation, ranging from an increase of 56% in Clonskeagh / Milltown to a decrease of 6.3% in Clonskeagh / Farranboley. Rathfarnham DED, where the subject site is located has experienced steady but unspectacular population growth in the period 1991 to 1996. It is likely that

moderate population growth in the DED has taken place since 1996 due to development of new infill schemes in the area.

The level of population growth in the area can be attributed to the popularity of the area as a residential location, which has been the case for many years. The proposed LUAS line, which will serve the area, and strategies for sustainable development of the city are likely to further increase the popularity of the area for residential development.

Age Profile

Table 5.2 below shows the existing age profile for the State, Dublin City, Dublin City and County, Rathfarnham DED and the wards in the vicinity of the site mentioned in Table 5.1.

Area	Age Groups as a % of the Overall Population 1996				
	0 – 14	**15 – 24**	**25 – 44**	**45 – 64**	**65 +**
State	23.7	17.5	27.7	19.4	11.4
Dublin City	18.3	19.1	30.3	19.2	13.1
Dublin City & Co	22.0	18.6	30.3	19.1	9.9
Rathfarnham DED	**15.5**	**19.3**	**32.3**	**19.0**	**13.9**
Other Wards (Average)	11.4	19.5	26.3	14.1	9.1

Table 5.2 Age Profile of Popualtion

In 1996 the age profile in Rathfarnham DED differed only slightly from the State and Dublin City and County trends as can be seen in Table 5.2 above.

- The percentage of under 15's in the DED is below that of the City and County while it is slightly above the figure for other Wards in the vicinity of the site.

- The percentage of 15 – 24 year olds in the DED is similar to national and City and County figures while for 25 – 44 year olds the percentages are slightly above other figures. This is probably indicative of the area containing a substantial number of new apartments and flats which are occupied by that age group.

- The percentage of 45 – 64 year olds is similar to that of the State and the City and County while it is slightly above that of the wards in the vicinity. The percentage of 65 + year olds in the DED is higher than other areas, this is indicative of Rathfarnham being a mature Dublin suburb where many families having grown up and only the parents remaining in the family home.

- The present on-site population is approximately 180 people during term time and 70 during the summer. Six staff are currently employed in Trinity Hall.

5.3.3 Services and other facilities

The types of services available in the immediate area are typical of those available in most city suburbs. There are a small number of local shops and other facilities serving the local area close to the site. Any other facilities and services can be found in Rathmines Village or Dublin City.

Rathgar Village is located 800 metres from Trinity Hall. The village while small has most facilities which would be expected including shops, banks, pubs, restaurants, churches and schools. It is easily accessible to Trinity hall, being within a ten minute walk or a five minute cycle.

Rathmines Town Centre is located within 1 km of Trinity Hall, the town centre is substantially bigger than Rathgar. It contains a shopping centre with a number of supermarkets and other shops. Other facilities including a cinema, banks, restaurants, schools, churches, pubs, doctors etc. are all located in Rathmines. For many years Rathmines has been an area with a large student population and it is likely that this will continue to be the case in future years.

Dublin City is located approximately 3.5 km from Trinity Hall. All students living in Trinity Hall will be attending Trinity College Dublin in the city centre and as a result are likely to spend most of their day in the city centre. Any facilities and services not available locally are available in Dublin City.

5.3.4 Amenities in the Area

There are a wide variety of amenities and social facilities in the Rathgar / Rathmines area. These include two tennis clubs in Dartry and Rathgar, a squash and fitness centre on Orwell Road, a local river walk beside the River Dodder, Bushy Park in Terenure and Palmerstown Park to the rear of the site. Other sporting and social facilities are available and easily accessible in Dublin City and County.

Trinity Hall is presently used for some sporting activities, there is a sports hall and football pitch on the site. Generally only students resident in Trinity Hall use these facilities as the main sports grounds for Trinity College are located in the college itself and in Santry, 7 km north of Dublin City, they are not open for use by the general public.

5.3.5 Transport

Chapter 12 – Traffic and Transportation, provides a comprehensive analysis of traffic and transport patterns resulting from the proposed scheme. The proposed development has good access to public transport into the city centre with a number of bus routes passing close to the site and the proposed LUAS located within 300 metres of the site. It is also quite feasible to cycle and walk to Trinity College from Trinity Hall.

5.4 Impacts from the Proposed Development

5.4.1 Population

As a result of the proposed development there is likely to be a large increase in population of Rathfarnham DED (approximately 765 people) with the

majority of the increase occurring in the 15 – 24 year old age group. This increase is unlikely to create any major changes in the demographic structure of the area, after the initial population increase. Continued population increase will not occur in the area as residents of Trinity Hall will not be starting families. The population of the site will fall substantially in summer to approximately 380 as the college academic year runs from October to June.

The proposed development is compatible with the residential policies and objectives of Dublin Corporation outlined in the Development Plan 1999 and the current Central Government strategy for achieving sustainable development by encouraging intensive use of residential lands in the vicinity of public transport corridors. The proximity of the development to the proposed LUAS Light Rail line, which will provide easy access to the city centre and beyond, will help to consolidate the use of this important transport corridor and is a good example of sustainable urban development.

5.4.2 Employment

Construction Employment

While under construction the development is likely to give rise to approximately 300 direct jobs at peak times, it is likely that this figure will fluctuate from time to time when different aspects of the development are being constructed. Due to a multiplier effect, additional jobs will be created during construction, it is not possible at this stage to estimate how many jobs will be created as a result of the multiplier effect but it is likely to be substantial. Construction workers are likely to spend money in local shops which will provide an economic injection to the local economy. Construction of the development will be put out for tender so it is not possible to identify at this stage where the main economic impacts will occur. It is likely however that construction workers will be recruited from throughout the Dublin Area and beyond.

Operational Employment

When the proposed development is fully operational and occupied to capacity it is likely to provide up to 14 full time equivalent jobs ranging including cleaning, security, maintenance and management staff. Some of these jobs may be seasonal, depending on occupancy rates at particular times.

5.4.3 Services and other facilities

The general area is well served with served with shopping and other services. The close proximity to Rathmines, Rathgar and Dublin City will ensure that the impacts on shopping and other services are spread widely throughout the area.

There will be an injection of extra income into the local area when the development is fully operational. The economic impact on local shops and other services from the population increase is likely to be considerable with local convenience shops and pubs likely to benefit most. A mini-market, laundrette and other common facilities are being provided in a central services block. A canteen is also being provided as part of the scheme while cooking and eating facilities are also being provided for each apartment.

There will be no impacts on local schools as the students living in Trinity Hall will generally not have children. Nearly all students living in Trinity Hall will be attending Trinity College Dublin, in the city centre.

5.4.4 Amenities

The impact on local amenities and sporting facilities is likely to be limited as many of the students who will be accommodated in Trinity Hall are likely to be involved with sports clubs based in the college and are not therefore likely to be using sports and amenity facilities in the Dartry Area. The football pitch and open space to the front of Trinity Hall will be lost when the development is constructed, but a high ratio of open space will be maintained within the completed development, high quality landscaping will also be incorporated into the development. Limited sports facilities will remain in Trinity Hall, including the existing sports hall and squash courts which will be available for use by residents of the complex.

5.4.5 Transport

There is likely to be a moderate impact on transport patterns in the area, this is examined in detail in Chapter 12 – Traffic and Transportation. It is likely that the majority of students will either walk, cycle or use public transport to get to Trinity College. Buses serving the area are likely to become more crowded at peak times as a result of the increase in numbers using them however, student travel departure and arrival times during term are varied depending on lecture times and evening college activity. Generally the flow of student traffic will be spread over several hours in both the morning and evening and should not generate significant peak flows. The proposed LUAS line is projected to be operational by the year 2001 but for the purpose of this EIS, it has been assumed that LUAS will not become operational until a later date, as it is currently running behind schedule. When open it is likely to be used by students travelling to the city centre and should ensure that local bus services do not become too crowded at peak times as a result of the proposed development.

5.4.6 Health and Safety

During construction there may be concerns in relation to health and safety of local residents due to movements of construction traffic to and from the site. It is not possible to state exactly what the site arrangements will be until the contractor is appointed following the tender process however, site operations will comply with all national health and safety standards for construction sites. It is however anticipated that a new site access will be constructed off Dartry Road adjacent to the existing site entrance which will be used by all construction traffic. A temporary access road for non-construction traffic will be provided from a short spur off the existing gateway on Temple Road. Separating construction from other traffic ensures greater traffic safety in the vicinity of the site. Parking for construction staff will be provided on site so there will be no disruption to local residents as a result. A mechanical road sweeper, a wheel wash facility and watering down during dry periods will help ensure that dust and other materials from the site does not cause a nuisance to local residents. Section 12 Traffic and Transport, examines construction traffic in detail.

5.5 Mitigation Measures

No significant adverse environmental impacts have been identified which will impact upon human beings, therefore no mitigation measures are required in this section.

Chapter 6 – Flora and Fauna

6.1 Introduction

Trinity Hall is an urban parkland site with large buildings set amongst open lawns and trees which were partly planted as an Arboretum for the adjacent University Botanic Gardens. There are therefore, no wild habitats and the flora and fauna which are present consist of species which were planted or those which can invade by themselves and co-exist with people.

The site was visited in February 1999 while some older information has been included from previous years' knowledge of it. Dr. Steve Waldren (Curator/Administrator of Trinity College Botanic Gardens) was consulted for some of the faunal details about areas of the Trinity Hall site. A comprehensive inventory of the trees in the north west corner of the site is available in Appendix 6.

6.2 The Proposed Development

The development includes the construction of three accommodation blocks on the site with appropriate paving and landscape treatment. A landscaped water feature will also be constructed. It is intended to transplant some of the trees within the grounds and to move others to the Trinity College Dublin property at Santry.

6.3 The Existing Environment

6.3.1 Designations

There are no special ecological designations applying to land or species on the site although the adjacent Botanic Garden has a number of plants protected by national legislation and international treaties.

6.3.2 Habitats and Vegetation

Two main habitats occur, the open lawns, formerly used as games pitches and the tree belts and parkland which surround them.

6.3.2.1 Grassland

The lawns are typically of bent grass *Agrostis* species, crested dogstail *Cynosurus cristatus* and ryegrass *Lolium perenne* with some patches of red fescue *Festuca rubra*. Broad-leaved plants are infrequent though the typical lawn species of white clover *Trifolium repens*, catsear *Hypochaeris radicata*, daisy *Bellis perennis* and dandelion *Taraxacum officinale* do occur. The community is not species-rich as it has been managed to maintain an intact and vigorous turf, first for sporting use and latterly for general amenity. Beside the tennis courts there is a little rougher grassland in which cocksfoot *Dactylis glomerata*, false oat *Arrhenatherum elatius* and scutch *Elymus repens* play a part.

6.3.2.2 Woodland belts

Well grown trees surround most of the periphery of the site, extending up the avenue from Dartry Road and in front of the existing main block. In addition

there is a varied parkland of trees at the northern end along Palmerstown Park and this links into a shrub and tree border along the crescent of the Park itself towards the Botanic Garden buildings.

Tree health is generally good and there are large individual tree stands of beech, horse chestnut, sycamore, lime and oak as well as a few pines and other conifers. The parkland at the northern end is much more varied with young trees from many parts of the world, for example Eucalyptus and Metasequoia, growing together with shrubs - Corylus, Crataegus and Cornus. They are mostly spaced out though the canopies although some are now beginning to touch.

Beneath the trees there are a few garden and hedgerow species such as celandine *Ranunculus ficaria*, wood avens *Geum urbanum*, speedwell *Veronica hederifolia*, chickweed *Stellaria media* and goosegrass *Galium aparine*. There are also some naturalised bluebells, crocuses and snowdrops. However there is also much bare or almost bare ground created by the shade, dead leaves and the general regime of tidiness and mowing.

6.3.2.3 Adjacent habitats

The eastern part of the site consists of the flower beds, planted borders and tree groups behind and partly enclosed by the existing buildings. The herbaceous flora is more varied here involving native and non-native plants and there are garden collections of certain families. There is also a group of greenhouses, most of which are heated.

Palmerstown Park is unusual for a city park in having groups of fully grown pine and other trees with some undergrowth, it has however been established for a long time.

6.3.3 Fauna

The vertebrate fauna which occurs on this site is shared by Trinity Hall and Palmerstown Park and is clearly richer than it would be in each site if isolated. Thus the fox probably uses both these habitats as well as the local housing estates for feeding, it has a secure breeding place in the Botanic Gardens. Other mammal species include hedgehog, brown rat, house mouse and there could be a few pygmy shrew and bats although they are not regularly seen.

The bird fauna is richer than expected with many if not most of the garden species occurring. The population of tits was especially notable on both visits with a large flock of long-tailed tit associated with the younger, parkland trees at the northern end. All other species of tit occur, along with all thrushes (including fieldfare and redwing), robin, dunnock, wren, goldcrest, chaffinch and bullfinch. Treecreepers were not seen but are likely to occur, as are redpolls and siskin, outside the breeding season. The blackcap occurs in winter with chiffchaff and willow warbler at times in the spring and autumn. Of the larger species hooded crow, jackdaw, magpie, woodpigeon and sparrowhawk are regular visitors and all except the first nest on site. Black-headed gulls are sometimes seen on the grassland areas.

6.3.4 Evaluation

There are few native species in the flora apart from those planted to form the overall structure of the gardens.

The chief values of the site are its collection of non-native trees and the birdlife that this planting supports. Both are unusually rich and many of the tree species are not widely grown. There is a bias toward 'teaching' trees, species that provide examples for practical teaching work and the current size of the trees make them particularly useful for collecting class material. Several are only now reaching reproductive age and beginning to flower.

The vertebrate fauna is primarily of large-garden species that occur in most of the older suburbs but the variety and numbers are augmented by the area of habitat on this site and in the adjacent Palmerstown Park. The presence of sparrowhawk is ascribed to this.

6.4 Impact of the Development

Development proposals will cause changes in the ecology of the site with the replacement of garden areas by buildings and paving. The mass of young trees at the northern edge will be broken up and this will lead to a decline in their importance for passerine birds. The lawns also will be divided by buildings so that other birds requiring a certain area of open space will be discouraged. Such impacts will be locally significant but are unlikely to lead to the disappearance of species from the Palmerstown Park area.

The loss of some specimen trees will devalue the collection on site and may reduce its usefulness for teaching. Many trees and shrubs grow best in a woodland setting and suffer from wind and temperature effects beside buildings. Moving half-grown trees to another site can be of limited value as their survival and future growth is often compromised. The scale of this impact may appear small in local terms but may be more significant to research and teaching work.

6.5 Mitigation Measures

A new secure railed arboretum for relocated specimen trees will be provided as a feature along the entrance driveway. In addition to this, provision will be made to transplant as many individual trees as possible to suitable new positions within the development area and to replace those that cannot be moved on another site.

Landscaping will be designed so as to maximise its usefulness to birdlife for food and nesting cover. The water feature will be given a natural treatment at the edges which will attract some invertebrates at present absent for the site. This will have the added benefit of concealing its fluctuating nature.

Chapter 7 – Soils

7.1 Introduction

This section considers the impacts on soils resulting from the proposed development. Substantial areas which were previously open space will be paved and covered with buildings with resultant impacts.

7.2 Proposed Development

The buildings and the proposed pavings will obliterate the existing soil profile over the majority of the western portion of the site – except where provision has been made to retain existing trees and lawns.

7.3 Existing Environment

The existing soils have been examined by site inspection, trial trenching and boreholes[1].

The soils are typical of the general region being derived from a glacial parent material which comprises boulder clay with drifts of sandy gravel material at varies depths.

A number of the borehole logs in the development site (boreholes 2, 4, 5, 9 and 17) exhibit some evidence of previous disturbance ('fill' being recorded in depths of between 0.3m & 0.7m). Weathered rock was reported from a number of boreholes at relatively consistent depths of between 5.5m and 7.5m. below the surface.

Groundwater levels varied across the site though it should be noted that both borehole 7 and borehole 8 on the southern boundary of the site encountered water strikes between 1 and 2 metres below the surface.

7.4 Impacts on Soils

The loss of a large area of relatively undisturbed soil is an adverse localised impact in the relatively urbanised context. The only consequences of the loss are the depletion of the non-renewable soil resource (which is very minor) and the loss of localised soil assimilative capacity for both hydraulic infiltration and the nitrogen cycle.

7.5 Mitigation Measures

The soil under and immediately adjacent to the canopy spread of mature trees will be preserved and protected from compaction and adverse disturbance during and after the construction period.

Surface water from the proposed development will be intercepted and retained on site for controlled release to the adjacent surface water disposal network.

[1] A detailed site investigation report – for site engineering purposes has been prepared by Site Investigations Limited.

Chapter 8 – Water

8.1 Introduction

This section assesses the likely significant impacts of the proposed development on hydrology

8.2 The Proposed Development

Of a total Trinity Hall site area of 4.27 hectares, approximately 0.34 hectares are occupied by existing buildings and paved areas giving a site coverage of 8%, with a plot ratio of 0.184. It is now proposed to build on / pave a further 0.55 hectares.

Water falling on the impermeable areas will be stored primarily in a new water feature with some additional retention capacity in the drainage pipework. There will be a controlled discharge to the Corporation's existing 750mm water drain underneath Dartry Road, the connection running via the main gate. The rate of discharge will not exceed 5 litres per second as specified by the Corporation's Main Drainage Division Stormwater Management Policy Guidelines.

A grit and oil trap will intercept surface drainage from all car parking areas.

8.3 The Existing Environment

The average annual rainfall in the area is approximately 800mm. Potential evapotranspiration is about 500mm. Potential recharge is therefore about 300mm per annum. Extreme rainfall amounts for a return period of 5 years are 16mm for 1 hour and 60mm for 2 days.

There are no surface water features on or in the immediate vicinity of the site. The site lies in the catchment of the River Dodder which flows within 400m to the south. There are no known wells in the local area, water being provided by Corporation mains.

Existing stormwater discharge levels on the site currently exceed the discharge limit of 5 litres per second specified by the Corporation's Main Drainage Division Stormwater Management Policy Guidelines for new developments.

8.4 Predicted Impacts

There will be no significant impacts on water drainage. Stormwater discharge levels in the proposed development will be a reduction of existing discharge levels from the site.

8.5 Mitigation Measures

Potential water drainage impacts have been mitigated by the design measures described at section 8.2 above, principally the on-site retention system and the oil & grit traps.

8.6 Residual Impacts

There will be no significant residual impacts on water drainage.

Chapter 9 – Air Quality

9.1 Introduction

This section examines the impact of the proposed redevelopment programme on the local air quality during the construction and also the 'operational' phase. The site for the new student residential buildings is within the Trinity Hall grounds on Dartry Road and will require substantial earth removal as part of the construction phase. There is medium density housing surrounding the site along Dartry road, Palmerston Park and Temple Road and so the impact in terms of dust emissions during the construction phase needs to be addressed. In addition, once the new premises are in operation there will be an increase in vehicle movements within the area and there will be miscellaneous emissions from heating and cooking requirements within the new buildings.

9.2 The Proposed Development

9.2.1 Construction Phase

This phase of the development may have a short-term impact on air quality in the immediate locality of the site boundary from site preparation activities involving the removal of topsoil/ overburden and operation of construction machinery and equipment.

There is a potential for dust emissions to be generated during the preparation of the site. Most of the material removed will be taken off-site in trucks and such vehicle movements can generate significant dust emissions unless adequate control measures are implemented. In addition, air emissions from the exhausts of plant construction machinery and haul trucks may also impact on the local air quality.

9.2.2 Operational Phase

The air quality impact resulting from the normal activities within the new student residence buildings will result from air emissions from vehicles entering, parking or departing from the car park, service vehicle movements and from space/water heating from the boiler. The rate of emissions of pollutants within the car park will depend on the number of spaces and the rate of activity within the car park. This movement of vehicles will contribute to total vehicle emissions in the area especially as maximum emissions tend to occur when cars depart from parking spaces due to the 'cold' state of the engine compared to lower emissions when the engine is 'hot'.

9.3 The Existing Environment

9.3.1 General air quality

Trinity Hall is situated in an area of medium density housing. Properties in the area are either large detached or semi-detached dwellings, some of which having been converted into flats or to provide office accommodation. The site is about 800 metres east of Rathgar village and one of the major arterial roads into the inner city from south-west Dublin, which passes through Terenure, Rathgar and into Rathmines. The volume of traffic travelling along Dartry

Road is substantially lower with relatively low traffic movements, from an emissions point of view, along Palmerston Park and Temple Road. The concentration of air pollutants associated with emissions from motor vehicles in the immediate vicinity will therefore be significantly lower than adjacent to the main roads passing through Rathgar.

The air quality is considered to be satisfactory in the area. With the success of the ban on the sale of bituminous coal throughout the Dublin urban area since 1990, (Marketing, Sale and Distribution Regulations 1990-1993), air pollution levels have since fallen dramatically. Current levels of smoke and sulphur dioxide in this part of the conurbation are nowadays well below the National Air Quality Standards (NAQS) (S.I. No. 288 of 1987). These air quality standards specify a daily limit value of 250 $\mu g/m^3$ for smoke and sulphur dioxide (expressed as a 98 percentile of daily mean concentrations). Results from the monitoring site at Rathmines (approximately 2 km to the north), which is operated by Dublin Corporation[1], indicate that the 98 percentile levels for smoke and sulphur dioxide were 44 and 64 $\mu g/m^3$ respectively in 1997/98. These levels are less than 30% of the National Air Quality Standard. Corresponding maximum daily levels of smoke and sulphur dioxide during the 1997/98 annual period were also below the more stringent E.U. Air Quality Directive Guide value of 125 $\mu g/m^3$. The average annual smoke and sulphur dioxide levels at the Rathmines site were 14 and 29 $\mu g/m^3$ respectively and similar average levels could be expected in the Dartry Road area.

With the low level of emissions from the residential properties in the locality as a result of the dominant use of natural gas or oil the primary source of air pollutants observed in the area is from motor vehicle exhausts. At the kerbside of Dartry Road elevated concentrations of nitrogen dioxide, hydrocarbons (benzene) and also particulates may be detected. However beyond 10-20m from the roadside ambient levels of nitrogen dioxide and hydrocarbons will be typically near to background suburban levels. Nitrogen dioxide is measured continuously at Lower Rathmines Road, which has a significantly higher traffic volume than along Dartry Road. The results indicate that nitrogen dioxide concentrations (expressed as a 98 percentile of hourly mean concentrations over a year) in 1997 were less than 50 $\mu g/m^3$ with annual mean levels of less than 20 $\mu g/m^3$. This concentration of nitrogen dioxide is well below the NAQS for nitrogen dioxide of 200 $\mu g/m^3$(98 percentile) and also less than the E.U. Air Quality Directive guide value of 135 $\mu g/m^3$. It is evident that levels of nitrogen dioxide near the boundary of Trinity Hall will be less than these values due to the much lower volume of traffic. Corresponding annual average hydrocarbon concentrations, specifically benzene, will also be typically less than 5$\mu g/m^3$, at distances of more than a few metres from the roadside. There is no NAQS for benzene, although the E.U. have recently proposed an Air Quality Directive with a limit value of 5 $\mu g/m^3$, expressed as an annual average, to come into force by 2010.

[1] Atmospheric Pollution and Noise Control Unit Environmental Health Section, Annual Report 1997/98, Dublin Corporation, Dublin 8.

There are no NAQS for Carbon Monoxide although the E.U. have recently adopted a proposal for an Air Quality Directive which sets a limit value for 8 hour exposure of 10 mg/m^3 based on World Health Organisation exposure criteria. This limit value is to be met by 2005. With traffic exhausts being the primary source of this pollutant the highest levels are normally experienced in slow-moving congested areas with poor air movement such as inner city streets. At higher vehicle speeds the emission rate decreases significantly. The results obtained from the Dublin Corporation monitoring site at College Green in the city centre indicate that the 8 hour average in 1997 was 2.7 mg/m^3, which is well below the proposed E.U. limit value. Given the much lower volume of traffic and higher vehicle speed in the area compared to conditions in the inner city, ambient carbon monoxide levels will also be well below the criteria of 10 mg/m^3.

With regard to particulates, referred to as PM_{10} (particulate material with a mean aerodynamic diameter of less than 10 μm) ambient levels in the area will be less than the proposed E.U. 1997 Draft Directive daily limit value of 50 $\mu g/m^3$ (no more than 25 exceedances per year by 2005). The primary source of particulates is from diesel-engine vehicles. Compared to the main arterial routes from the south of the city into the city centre there is a low volume of commercial vehicles travelling along Dartry Road and so roadside levels will be comparable to background suburban concentrations in the locality of Trinity Hall.

9.3.2 Dust deposition

Dust deposition rates in the locality are typical of those found in residential areas with levels generally less than 100 mg/m^2 per day, expressed as a monthly average. Within urban areas, levels of dust of this order of magnitude are unlikely to create a community nuisance. Even significantly higher short-term rates, which last only a couple of days, such as those that may occur during road-works, will normally be tolerated by residents living nearby without causing a reported nuisance. An average monthly dust deposition rate of 100-130 mg/m^2 per day is widely used as a boundary line limit value by Local Authorities in Ireland in relation to Planning or Air Pollution Licence conditions for quarrying and related activities to prevent a community nuisance.

9.4 Predicted Impacts

9.4.1 Construction Phase

The potential for dust emissions during the construction phase will, to a large extent, be related to local wind conditions, coupled with frequency and duration of rainfall. During dry weather conditions the wind may cause re-suspension of dust from areas of activity, such as trucks entering/departing the construction area, transfer of aggregates to/from stockpiles etc. The wind speed will also affect the dilution rate of exhaust emissions from construction machinery/trucks during this phase.

The proposed redevelopment of Trinity Hall involves the demolition of the link building situated near the centre of the existing grounds, the annexe building and the small gate lodge. The site for redevelopment will be levelled and

overburden removed to provide a suitable base for the foundations of the new buildings. It is estimated that this phase of construction will take about 10 weeks to complete and involve removal of demolition material and overburden by truck off-site. The excavator will load the overburden material from the site into 20 tonne trucks. The construction phase is expected to last from 20 to 30 months and will involve substantial vehicle movements into and out of the new temporary entrance on Dartry Road. It is estimated that there will be a total of approximately 1,122 truck journeys (2,244 vehicle movements) over a 10 week period needed for preparing the site. This volume of vehicle loads is equivalent to about 4-5 truck journeys (8-10 vehicle movements) per hour during the normal working day.

There will be some additional approximately 1985 trucks (3,970 movements) during the building phase. Of these vehicles delivering building materials, blocks, pre-cast concrete sections as well as internal fittings, glass etc. only a small number will transport aggregates or ready-mix concrete onto the site and so dust emissions will be relatively low. It is proposed that ready-mix concrete used in the building of the residential units will be supplied by truck thereby eliminating the need for an on-site cement storage silo, with associated dust emissions. Asphalt for the new internal road surface and car-parking areas will be delivered as hot-mix in covered trucks.

Air emissions from the exhausts of the vehicles and miscellaneous construction machinery will comprise mainly of nitrogen oxides and particulate emissions from the diesel engine exhausts. The scale and duration of the phase when heavy construction equipment may be needed to clear overburden material and demolition of two small existing dwellings is limited to the first 3-4 months as the bulk of the construction will involve the construction of the various building units.

9.4.2 Operational Phase

9.4.2.1 Traffic along Dartry Road

There will be approximately 160 car parking spaces provided for the student residential buildings. The projected travel mode split is likely to be similar to the present situation with about 5% of students using private cars and the vast majority travelling into the city by bicycle, on foot or by public transport, see Chapter 12 – Traffic and Transport. There will also be only infrequent arrivals and departures of service vehicles associated with the proposed development.

Compared to the present volume of traffic along Dartry Road and adjoining roads the additional emissions originating from this relatively small increase in vehicular traffic will be very small and difficult to detect beyond the immediate parking area within Trinity Hall grounds. The additional impact on nitrogen dioxide concentration due to emissions from vehicles using student residential complex during the morning and evening peak evening commuter period is predicted to be minor compared to current levels of nitrogen dioxide, hydrocarbons and other pollutants originating from vehicle emissions.

9.4.2.2 Car-park vehicle movements

The movement of cars within a car-park can generate additional exhaust emissions due to the relatively slow speed and typical stop-start driving conditions. 160 parking spaces are to be provided to cater for vehicles within the development. Although this will add to current vehicle emissions within the grounds of Trinity Hall they will not have a significant impact on air quality in the surrounding area due to the scale of the proposed development and the location of the car-parking area within the grounds.

9.4.3 Miscellaneous Air Emissions

It is proposed that a centralised boiler plant, which will operate on natural gas, will supply space and water heating for the development. Natural gas is the preferred fuel for use in urban developments as it has a lower mass emission rate of air pollutants compared to other fossil fuels and a high energy efficiency, thereby reducing emissions per unit of energy generated. The location of the centralised boiler plant and the exhaust stack will be designed to ensure adequate dispersion of air emissions from this part of the development.

Atmospheric emissions from cooking food in the kitchens in the residential complex will be minor with the cooker air extraction systems ducted to external wall vents. These will not generate an odour beyond a few metres from the ventilation exhausts within the buildings. The new kitchen and dining facilities to be located within the main building of Trinity Hall will be about 100m from the boundary of the grounds. Exhaust emissions from the main extractors in the main kitchens will be well dispersed over this distance preventing an odour nuisance occurring along the boundary.

The emissions from the miscellaneous activities within the proposed student residential complex will not have a significant impact on ambient air quality in the area due to the proposed control measures and low volume of emissions from the various emission points.

9.5 Mitigation Measures

9.5.1 Construction Phase

Dust controls at construction sites, such as spraying the access road with a mobile water tanker, can reduce dust emissions by upwards of 80%. Surface wetting of the road causes fine particles to adhere to the surface with a resulting reduction in dust emissions. Even a small amount of rain during the day may provide sufficient 'natural' dust control. In the case of 'unpaved' haulage roads within the site, a small increase in the moisture content, from a dry state to a damp condition can increase the control efficiency to up to 75%. The dust control efficiency only increases slowly after the moisture content is doubled from the initial dry state and so constant spraying is not normally required. Cleaning the public road with a mechanical sweeper also reduces the generation of dust by passing vehicles.

During the construction phase, measures will be taken to control dust emissions. These specific measures and any other measures necessary for

controlling dust emissions which will be incorporated into construction contracts include:

- Spraying surfaces with water to control dust emissions from certain locations such as near the entrance to the construction area and locations where building aggregates may be stockpiled.
- Any spillages of material from vehicles departing the site will be removed to prevent re-suspension by passing vehicles and dispersion of silt along the street lengths.
- A mechanical road sweeper will be used to clear silt material deposited on the public road near the construction site entrance when necessary.
- Where drilling/ pavement cutting, grinding of block surfaces or similar types of stone finishing operations are taking place, which may be a significant local source of fine particulate emissions (in particular sub PM_{10} size), measures to control emissions will be used to prevent a nuisance within the locality.
- Exhaust emissions from vehicles operating within the site, including diesel generators or other plant equipment, will be controlled by proper engine maintenance to prevent excessive emissions.

9.5.2 Operational Phase

The location of the centralised boiler house within the development and construction of an adequate stack will provide effective dispersal of exhaust gases from the boiler.

Air extraction systems from food preparation areas within the student residence will be designed and located so any of these activities will not result in odours at the site boundary.

9.6 Residual Impacts

The potential impact of dust emissions occurring during the construction phase is the main issue to be addressed, as emissions occurring during the operational phase will be minor. Emissions associated with the operational phase, such as from vehicles, and miscellaneous emissions within the development are minor and will not have a significant impact on the surrounding air quality. Dust control measures will be implemented to ensure that a dust nuisance does not arise, especially along Dartry Road near the entrance to the site. The control measures given in Section 9.5.1 are aimed at spraying the surface of the access and haul roads within the site with water from a mobile tanker during dry weather conditions and removing spillages from the road near the site entrance. Maintaining a 'clean' road surface near the site is very important as silt deposited from wheels of trucks departing the site or spillages can easily migrate along the road for a considerable distance and this would be likely to result in complaints from nearby residents. However, with the proposed control measures in place any impact will be of relatively short-duration and should not have an adverse effect on the surrounding air quality.

Chapter 10 – Noise

10.1 Introduction

The potential noise impact of the proposed student accommodation development is considered in this section. The noise impact assessment addresses the likely noise impacts during the construction, and potential impacts associated with the completed development.

Terminology used in this section is defined in Appendix 10. All noise levels referred to in this report are in terms of the one-hour average noise level (LAeq, 1hr) unless otherwise indicated. Appendix 10 provides details on the noise level calculations referred to in this section.

10.1.1 Methodology

The methodology used in compiling the noise assessment report consists of the following elements:

- A noise survey to determine existing daytime and night-time ambient noise levels
- Estimation of construction traffic noise on routes to the site based on measured truck data
- Estimation of construction work noise based on data measured at similar construction sites, and methods of British standard BS4142
- Assessment of potential impact of services noise, and calculation of appropriate noise emission limits

10.2 The Proposed Development

The greatest potential for noise generation will be during the construction phase. There will be significant movements of heavy vehicles to and from the site which will generate additional traffic noise on routes to the site. The impacts of construction traffic itself are considered in Chapter 12 – Traffic and Transportation, while the noise aspects of such are considered in this section.

During the operational phase, the noise emissions are likely to be minimal. There are no student bars or party rooms planned for the development. It is estimated that 5% of the residents may use car transport. Resident traffic is therefore not a significant consideration. Service traffic to the site will be minimal. Building services and air handling units may potentially increase the nighttime background noise levels in the area, and this aspect is considered in this section.

10.3 Existing Noise Environment

10.3.1 Noise Survey

A noise survey was carried out at the site of the proposed development on the 16th and 17th of February 1999. The objective was to determine the typical ambient noise levels at nearby residences by day and by night.

10.3.1.1 Measurement Locations

Measurements were made at three locations, A, B and C, within the grounds of Trinity Hall, as shown on the location map in Figure 10.1.

Location A

At the cul-de-sac off Temple Road. The measured levels here are taken as being representative of the daytime traffic noise environments at residences in the cul-de-sac and at houses nearby on Temple Road. The nighttime measurements at A are taken as being representative of the underlying background noise levels in the locality around the proposed development.

Location B

20 metres from the main entrance. Noise levels here are likely to be representative of daytime traffic noise levels at houses on Dartry Road.

Location C

Near northern site boundary. Noise levels here are likely to be representative of traffic noise levels at houses on Highfield Road / Palmerston Park.

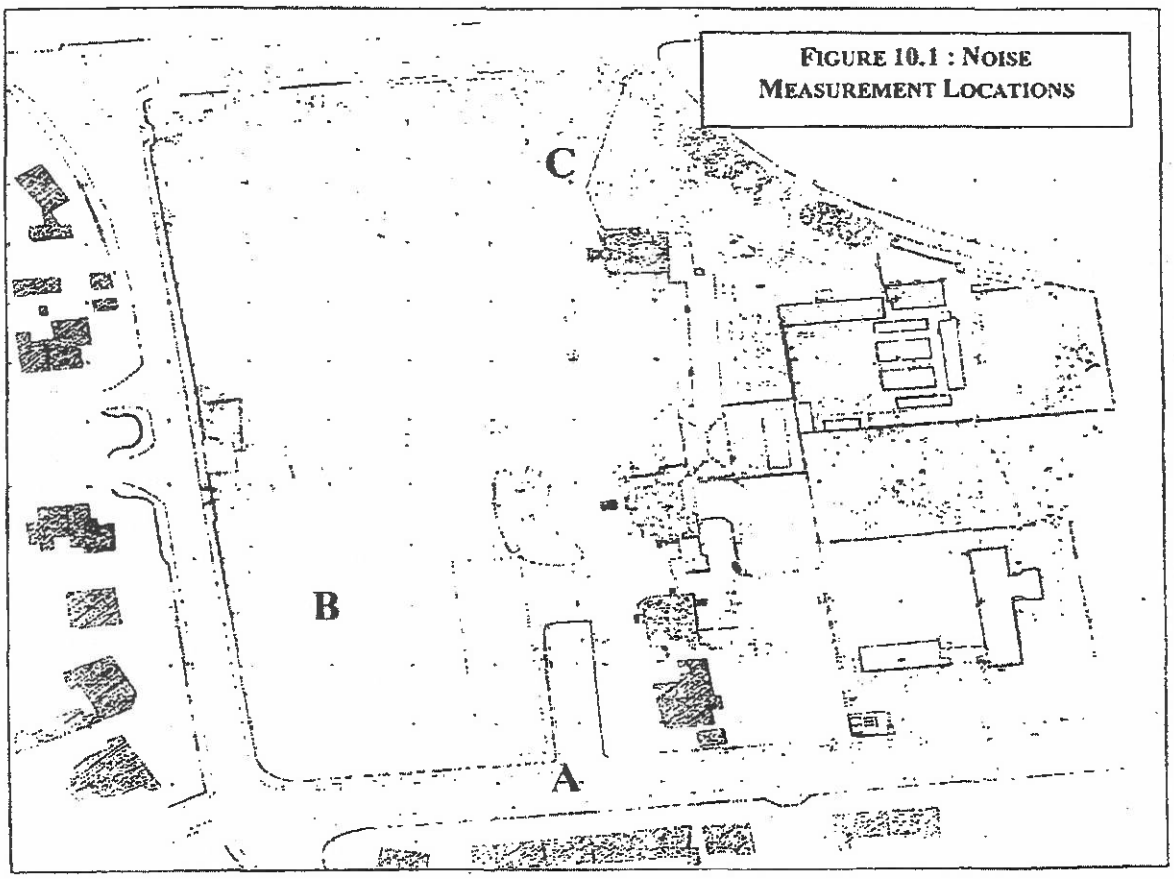

FIGURE 10.1 : NOISE MEASUREMENT LOCATIONS

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10.3.1.2 Noise Survey Results

The results of the noise survey are shown in Table 10.1. At all measurement locations the noise environment was dominated by traffic. Daytime measurements were made during the evening rush-hours, and during a low-traffic period later in the evening, to obtain an estimate of noise levels averaged over different traffic conditions. Night-time measurements were made only at location A. The purpose of the night-time measurements is to determine the underlying steady background noise level in the locality at nighttime (L_{A90}).

		Noise Level dB(A)			
Location	Time (24hr)	L_{Aeq}	L_{A90}	L_{A10}	Comment
Day	A 17-18	57	53	59	Traffic
	18-19	57	53	59	
	20-21	55	49	58	
	21-22	55	49	58	
	B 17-18	65	56	67	Traffic
	18-19	63	57	66	Trafficflow (vehicles/hour)
	20-21	65	50	69	17.00-18.00 : 1450/hr
	21-22	63	50	67	20.00-21.00 : 1050/hr
	C 17-18	57	53	59	Traffic
	18-19	58	55	60	
	20-21	54	51	57	
	21-22	55	48	58	
Night	A 00-01	50	42	53	Traffic
	01-02	49	41	52	
	02-03	48	41	52	

Survey Details
Instrumentation: CEL 480, B&K 2260, B&K 4231
Weather: Dry, generally calm, occasional gusts
Personnel: Colin Doyle

Table 10.1 Results of noise survey at Trinity Hall

Existing Daytime Noise Levels

Based on the noise survey data, the existing average daytime noise levels are as follows:

Location	Traffic Noise Level $L_{Aeq,1hr}$
A – Temple Road Cul-de-Sac	56 dB(A)
B – Houses on Dartry Road	64 dB(A)
C – Houses north of site	56 dB(A)

These traffic noise levels are typical of a suburban area subject to traffic noise.

Existing Night-time Noise Levels
Based on the survey data, the average underlying noise level at night-time is 41 dB(A) L_{A90}. This is the steady component of the background noise, excluding the intermittent noise from passing cars. It is due to the sum of the distant traffic noise from the surrounding urban areas. The underlying noise level is typical of a relatively quiet suburban area.

10.4 Predicted Noise Impacts

10.4.1 Construction Phase

10.4.1.1 Construction Traffic To / From Site

The greatest number of truck movements will be due to transport of spoil volumes, which are estimated to require 50 truck loads per day for a maximum of 10 weeks. This would correspond to an average hourly truck rate of 4–5 truck journeys (8–10 truck movements) per hour. The initial construction phase (site clearance) which requires the largest number of truck movements, is calculated to generate an additional traffic noise level of 59 dB(A) at houses along the route to the site, and on Dartry Road. Houses on Temple Road and Palmerston Park will be exposed to significantly lower noise levels from this activity.

During the general construction phase, the estimated number of truckloads of materials which will be transported to the site is approximately 1,985. Spreading this out over a nominal 20–30 month construction period results in an average daily rate of approximately 3 trucks per day approximately. This will give rise to maximum hourly traffic noise levels of 51 dB(A) at houses on routes to the site (based on an upper estimate of two truck movements per hour (see Appendix 10).

10.4.1.2 Construction Traffic Impact

The impact of construction traffic noise is determined by comparing the existing traffic noise levels with the levels anticipated during the construction phase, as follows :

Existing Traffic Noise Level on Dartry Road :	64 dB(A)
Additional Construction Traffic Noise :	59 dB(A) (maximum estimate)
Total Traffic Noise Level :	**65 dB(A)**

Therefore, the total traffic noise will increase by 1 dB. This is a slight increase, and will not be noticeable at any of the noise measurement locations.

10.4.1.3 Construction Noise

Noise levels on a construction site can vary substantially throughout the day and from week to week as construction progresses. Typically noise levels at 50 metres from a building site would be 60 dB(A). This includes noise from vehicles on site, construction plant and equipment and manual work.

Houses on Dartry Road may experience noise levels of around 60 dB(A), while construction is in progress at the western part of the site. The level of construction noise will be a similar order of magnitude as the existing traffic

noise. It will be noticeable outdoors but not intrusive indoors. There is a slight noise impact from construction activities.

Houses near location A, in the cul-de-sac off Temple Road may experience noise levels of up to 65 dB(A) while construction is in progress at the eastern part of the site. This will significantly exceed the existing ambient noise levels of 56 dB(A). It will be noticeable outdoors, but not likely to be intrusive indoors.

Houses near Palmerston Park to the north of the development may also experience construction noise levels of up to 65 dB(A) while construction is in progress at the northern part of the site. This will significantly exceed the existing ambient noise levels of 56 dB(A). It will be noticeable outdoors, but is not likely to be intrusive indoors.

No nighttime construction activities are envisaged. Working hours are expected to be as 8.a.m. to 8 p.m. on weekdays, and on Saturday 10.00 to 4.00 p.m.

In considering the noise impact of construction activities, account has to be taken of the inherently noisy nature of much of the construction work, the limited duration of the impact, and the need to progress the construction work as quickly as possible. Unreasonable construction noise restrictions could prolong the project, and actually increase the annoyance to the residents. Daytime construction noise levels of up to 65 dB(A) would be considered tolerable by most people for the limited duration of the construction phase. Construction noise levels in excess of 65 dB(A) would prove increasingly annoying, and levels in excess of 70 dB(A) may begin to prove intrusive indoors. The predicted construction noise levels at houses near the proposed development are well within the range that would be considered tolerable for major construction projects.

10.4.1.4 Vibration

No activities such as blasting, which could generate ground-borne or air-borne vibrations are envisaged.

10.4.1 Noise Impact of Completed Development

10.4.2.1 Traffic Noise

There is likely to be minimal vehicular traffic to and from the student residences. It is anticipated that only 5% of the resident students will use cars. Service traffic to the residences will also be minimal. Traffic noise impact on routes to Dartry Hall will be insignificant.

10.4.2.2 Services Noise

Daytime noise levels from building services, including air handling units, laundrettes, kitchens etc., are unlikely to approach existing background noise levels in the locality. No potential daytime noise impact source has been identified.

At night-time, air handling units on the roofs of apartment buildings, or facing in the direction of nearby houses could potentially generate additional noise which could be of significance. At this stage of the project precise details on these services are not available.

The existing steady background noise in the locality at nighttime is 41 dB(A) L_{A90}. If the contribution of the services noise from the new building is kept to less than 35 dB(A), there would be an increase of just 1 dB in background noise level. To ensure this, the external noise sources at each building must be limited to 78 dB(A) Sound Power (L_{WA}).

10.4.2.3 Entertainment Noise

No student bars or party rooms are planned in the development. There is therefore no potential impact as regards breakout of amplified music noise from such facilities.

For apartments located in the eastern part of the site near the cul-de-sac, there would be a potential impact due to music noise emanating from student rooms. Given the relatively low levels of background noise at nearby residences, and the close proximity to the proposed apartments, music noise from open windows could be audible and intrusive outdoors. This would not be an issue for apartments facing onto Dartry Road, where background noise levels are significantly higher.

10.5 Noise Mitigation Measures

10.5.1 Construction Phase

The calculated construction noise levels are within the range which would normally be tolerable for the limited duration of the construction phase. With construction noise levels anticipated to be less than 65 dB(A) at all residential locations, there is unlikely to be any significant noise intrusion into houses. Night-time works are not envisaged. No mitigation measures are required as no significant adverse impacts are expected to arise.

10.5.2 Completed Development

As regards possible night-time noise emissions from building services, total sound power from each building should be limited to 78 dB(A) L_{WA}. If night-time noise emissions are likely to significantly exceed this value, appropriate mitigation measures such as silencers or screening will be provided as considered appropriate.

A minor potential noise impact was identified at residences near the cul-de-sac at Temple Road due to music noise emanating from open windows in the apartments. This will be effectively controlled by appropriate apartment block management procedures, and rules for tenants, if required.

10.6 Residual Noise Impacts

During the construction phase, noise levels in the range 60 to 65 dB(A) may be experienced at nearby houses for limited durations as work is in progress

in adjacent parts of the site. There is not likely to be any residual noise impact from the completed development.

With building services noise limited as described, the background noise level will rise by at most 1 dB, to 42 dB(A). This is a slight increase, and would not be noticeable.

Chapter 11 - Landscape

11.1 Introduction

This section examines the effects upon the appearance and character of the site and its immediate environs. The objectives of the analysis are twofold:-

1. to determine the extent of the visibility of the new development
2. to determine whether and how the visibility will affect viewers.

11.2 The Proposed Development.

This section describes the physical attributes of the proposed development which are likely to affect the appearance and character of the site and its environs. The Planning Application Report provides a comprehensive description of the design materials and concepts of the project.

11.3.1.General

The site preparation and construction process will leave the appearance of much of the existing site boundary unchanged. The majority of the walls and the mature trees along Dartry Road will be unaffected with works limited to the environs of the existing entrance where the gate, gate house, part of the boundary wall and some trees will be removed to make way for the new entrance.

The buildings will be set back from site boundaries at distances similar to those of the existing dwellings in the areas.

The height, form, material and finishes of the new building are different to those of the nineteenth century buildings in the area - being dominantly horizontal, principally 4 & 5 storey in height and constructed using contemporary materials and forms.

11.3 The Existing Environment

The character of the surrounding area arises from the late nineteenth century pattern of large redbrick houses, mature gardens and streets which are rich in civic character. The latter takes the form of generous tree planting, finely detailed boundary treatments and the Palmerston Park. These factors combine to create a high quality manmade environment. This quality is reflected by the Development Plan which seeks to preserve many of the structures and features while also protecting the character and amenities of the area. The external character and appearance of the site – as viewed from the roads and residences in the vicinity - offers a contrast on account of it's low density, extensive vegetation, and distance from boundaries. There is limited visibility of the existing structures with an open institutional/amenity character predominating.

The existing appearance and character is further considered hereafter by reference to specific views from a number of diagnostic viewing positions.

Note that these locations have been selected to illustrate either a *worst case* (i.e. most exposed view) or views which are most representative of the likely effect on the appearance and character of the area.

Where relevant these viewing positions have been accompanied by photographs (viz. *Existing View 6).*

Existing View 1 (from Temple Road)
This view has been selected to illustrate the maximum (i.e. worst case) exposure to Temple Road. It must be emphasised that this view occurs for only a short section of road and will not be substantially available from points further east – on account of the intervening Brazilian Ambassador's residence. The view illustrates how no site structures or buildings are currently visible from this location.

Existing View 2 (from Temple Road/Dartry Road)
This view has been selected to illustrate the effect on a well-trafficked route. It is representative of how the site is first encountered by observers travelling northwards on Dartry Road. There is limited visibility of existing buildings within the site.

Existing View 3 (from Sunbury Gardens/Dartry Road)
This view from one of the roads which enters Sunbury Gardens is selected on account of it's location along the focal line of an existing road as well as on account of its significance because it is almost opposite to the proposed new entrance. At present there are relatively unobstructed views into the site from this location with a number of the buildings clearly visible.

Existing View 4 (from Dartry Road/Palmerston Park Junction)
Like View 2 this view is representative of the first impression of the site which is obtained by many observers travelling southwards on the Dartry Road. The character is almost exclusively created by the existing mature trees, the gates, wall and the small gate lodge. The existing entrance gate is just visible at the extreme right of the photograph.

Existing View 5 (from Palmerston Park (Road))
This is another 'worst case' location which again is only visible for a very short stretch of Palmerston Park Road. It occurs because of the coincidence of a low section of existing wall, poorly developed woody development within the site and an absence of ivy bearing tree stems.

Existing View 6 (from Trinity Hall)
The main entrance steps to Trinity Hall and flanking evergreen decorative planting are visible on the right of this photograph while the side elevation of Purser House is also visible.

Existing View 7 (from Purser House)
This view across open grass is directed towards the entrance drive and gate lodge. The limited extent of overlooking from the surrounding dwellings is clearly illustrated in this view.

Existing View 8 (from Palmerston Park)
There are intermittent views from the paths inside Palmerston Park. These views are intermittent and incomplete on account of the dense vegetation within both the park and the site at this point.

11.4 Impacts of the Proposed Development

11.4.1 General

There will be a readily apparent change of character from open, undeveloped, amenity and leisure uses to comprehensive and uniform residential landuse.

The development will represent an intensification which will contrast with the established low levels of use.

The appearance will also change significantly so that there will be a much greater variety of materials, forms, scales and uses visible from most points to the immediate north, west and south of the site.

The contemporary materials, forms, colours, finishes and scale will all contrast with the established 19th Century dwellings which surround the site. The following section examines the landscape and visual impacts (i.e. the effects on the appearance and character of the existing environment as illustrated by the *proposed views* which are computer generated simulations of how the development will appear from specific view points) by reference to the existing views which are described at Section 11.3 above:-

Proposed View 1 (from Temple Road)
The upper portions of building 3 will be visible above the proposed vegetation at the corner.

The appearance will contrast significantly with the existing view which is dominated by natural features within the boundary wall. It will also contrast with the existing late 19th Century and early 20th Century buildings which dominate the character of the Temple Road.

(Note that the vegetation on the corner in the foreground is proposed new planting/transplantation.)

Proposed View 2 (from Temple Road/Dartry Road)
The new buildings will be intermittently visible between trees and above vegetation. There will be limited contrasts with existing scales, forms and styles as seen from this location.

Proposed View 3 (from Sunbury Gardens/Dartry Road)
The proposed view will create a significant contrast with the existing view from Sunbury Gardens. The current openness and low intensity of built fabric will be replaced by the significantly taller, denser and more intensively used structures & routes.

The significant contrast of tall new buildings will be seen in a new context of a significantly more open transparent boundary treatment at the entrance

The loss of the familiar, established features will need to be considered in the context of the newly created visual amenities of avenues, boardwalks, water features and lawns.

The proposed appearance will be significantly different – though there will be a high degree of continuity of architectural and planting features – opinions on whether the impact is positive or negative will be highly variable and subjective.

Proposed View 4 (from Dartry Road/Palmerston Park Junction)

There will be a slight impact on the character and appearance of the area – as seen from this location. The new structures will be intermittently or partially visible through the existing and proposed trees.

(Note that the vegetation in the centre of the foreground – i.e. left of the traffic lights – is proposed new planting/transplantation).

Proposed View 5 (from Palmerston Park (Road))

The new developments will be intermittently and distantly visible from parts of Palmerston Road – as seen from the view. There will be a slight impact on the existing character of the road.

Proposed View 6 (from Trinity Hall)
The new internal space will provide a dramatic and dynamic new context for Trinity Hall and Purser House. This will positively increase the dominance and apparent size and formality of these structures.

Proposed View 7 (from Purser House)
The new internal space will also change the perception of the existing retained trees, lawns and planting and will create an additional internal amenity for the environs.

Proposed View 8 (from Palmerston Park)
The new development will be intermittently and partially visible through gaps in the trees and shrubs of Palmerston Park.

The new buildings will appear to be significantly taller than the existing buildings which are visible.

Having regard to the height, maturity and high proportion of evergreen trees in Palmerston Park the proposed development is unlikely to be perceived as being dominant from a significant portion of the park, as a result the impact may be described as 'slight'.

11.5 Mitigation Measures

The design has incorporated a number of measures to avoid, reduce or remedy landscape and visual impacts. These include the reduction of heights of structures at critical corner locations, the replanting of large trees at critical openings and the creation of a significant new interior courtyard – as part of a comprehensive site planning exercise which includes tree and shrub planting, as well as the creation of a hierarchy of pedestrian routes and spaces.

In addition the following specific measures are proposed:-

- Existing trees and shrubs at the corner of Temple Gardens and the road leading to the alternative entrance will be retained and augmented with minimal disturbance by the proposed reallocation of existing specimen trees.

- All existing ivy on trees which occur on or adjacent to Temple Road, Dartry Road or Palmerston will be retained (Ivy on trees provides important additional screening in winter time).

- The existing informal and irregular boundary treatments at Palmerston Park (i.e. old stonewalls with ivy and a variety of fencing material) will be maintained in its current condition. Any security treatment will be restricted to behind this wall.

- Existing perimeter planting will be augmented with replacement trees and shrubs on a phased basis to ensure that the screening is not solely dependent upon the longevity and continued health of the existing trees.

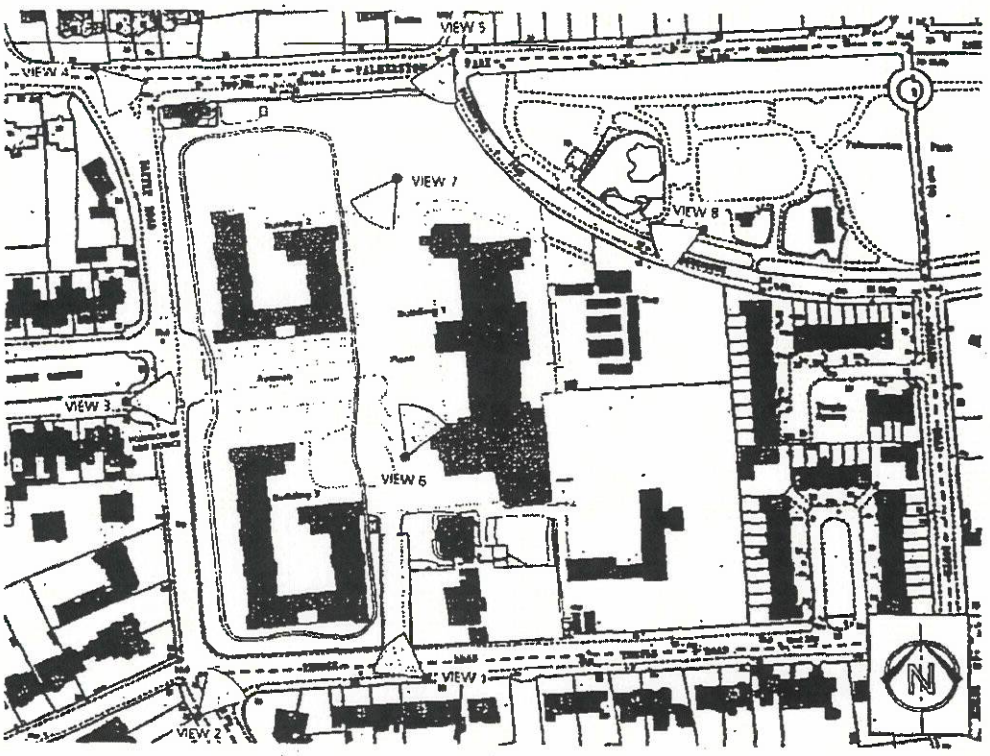
11.6 Variability of Visual Impacts

It should be noted that the intensity of visual impacts will vary throughout the day and throughout the year.

Maximum visibility will probably occur during winter evenings between (say) 6. p.m. and 11.p.m when lighted windows shall be visible through the leafless trees. Minimum visibility will occur during daylight hours when the trees are in leaf, indeed once the transplanted specimen trees at the north west and south east corners become established there will be a low visual impact in areas other than the environs of the entrance.

11.7 Residual Impacts

Following the establishment of new planting and the recovery of transplanted specimens and when the mitigation measures which are set out above have been implemented, then the residual impacts are likely to be:-



AN BORD PLEANÁLA
20 JUL 2020
LTR DATED _____ FROM _____
LDG- _____
ABP- _____

FIGURE 11.1
VIEW LOCATION MAP

FIGURE 11.2 EXISTING VIEW 1 - FROM TEMPLE ROAD

AN BORD PLEANÁLA
20 JUL 2020
LTR DATED ____ FROM ____
LDG. ____
ABP. ____

An Bord Pleanála
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FIGURE 11.2 PROPOSED VIEW 1 - FROM TEMPLE ROAD

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LTR DATED 20 JUL 2020
FROM
LDG-
ABP-

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20 JUL 2020
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FIGURE 11.3 EXISTING VIEW 2 - FROM TEMPLE ROAD/DARTRY ROAD

MODEL

FIGURE 11.3 PROPOSED VIEW 2 - FROM TEMPLE ROAD/DARTRY ROAD

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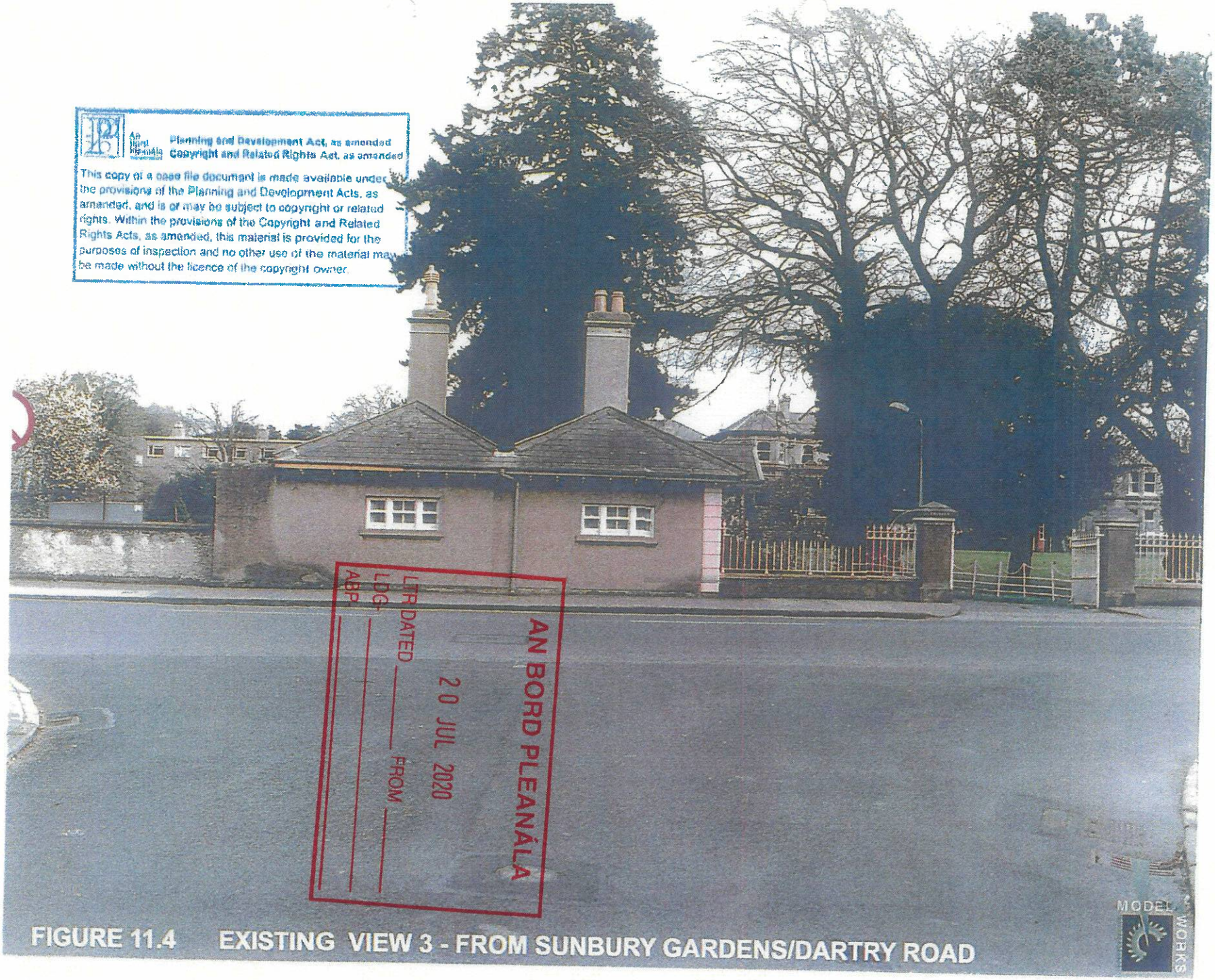

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FIGURE 11.4 EXISTING VIEW 3 - FROM SUNBURY GARDENS/DARTRY ROAD

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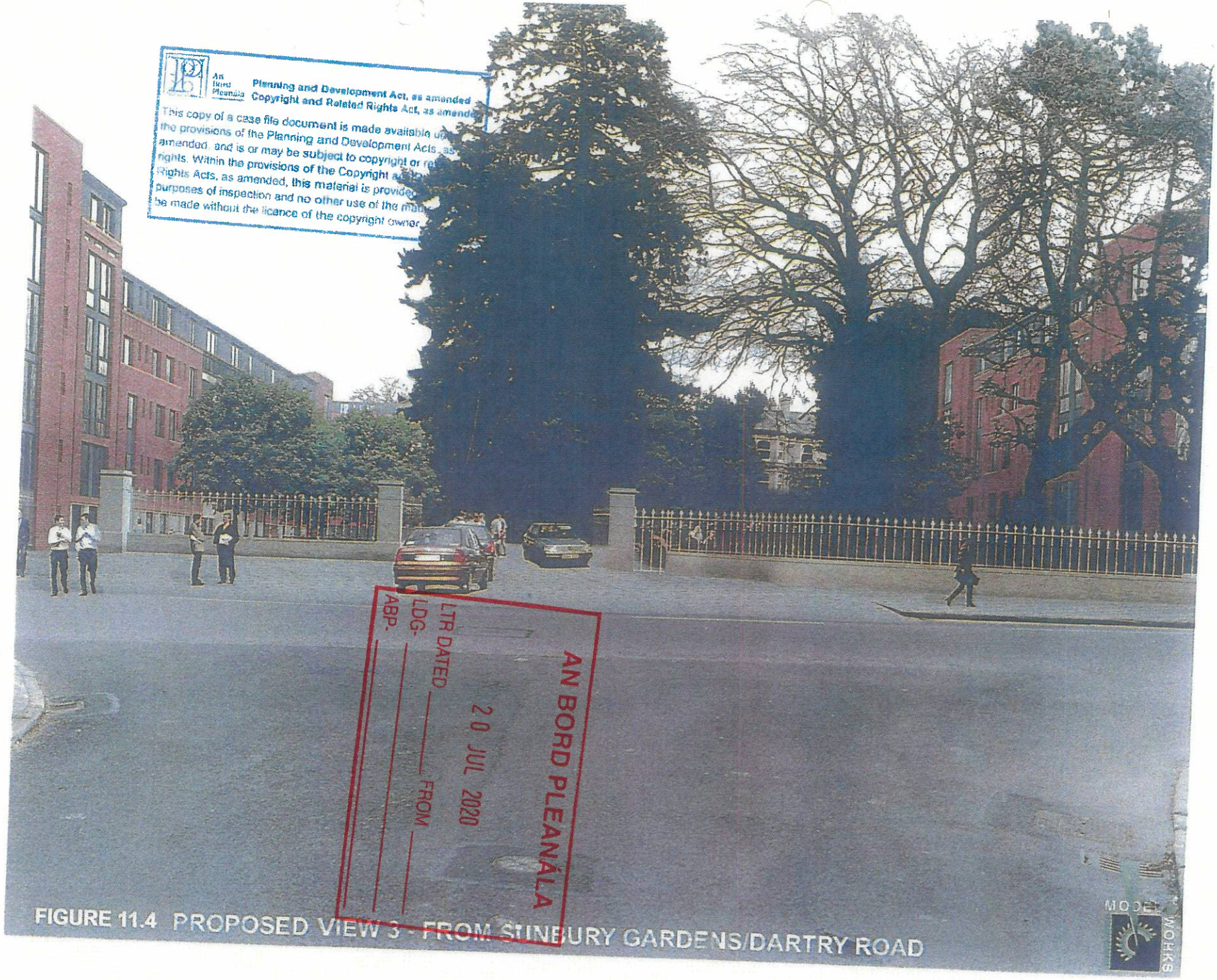

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FIGURE 11.4 PROPOSED VIEW 3 - FROM SUNBURY GARDENS/DARTRY ROAD

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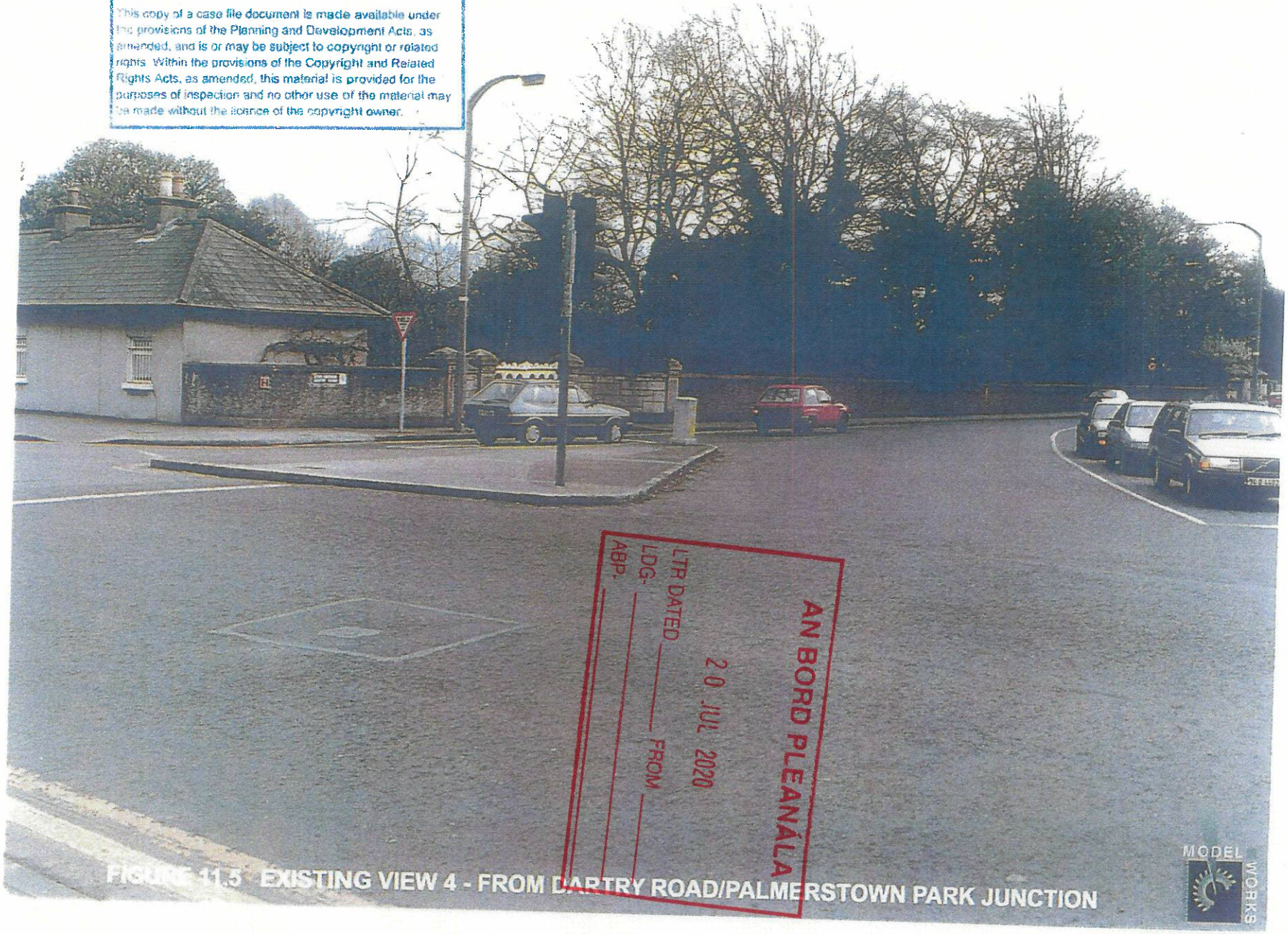

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FIGURE 11.5 EXISTING VIEW 4 - FROM DARTRY ROAD/PALMERSTOWN PARK JUNCTION

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FIGURE 11.5 PROPOSED VIEW 4 - FROM DARTRY ROAD/PALMERSTOWN PARK JUNCTION

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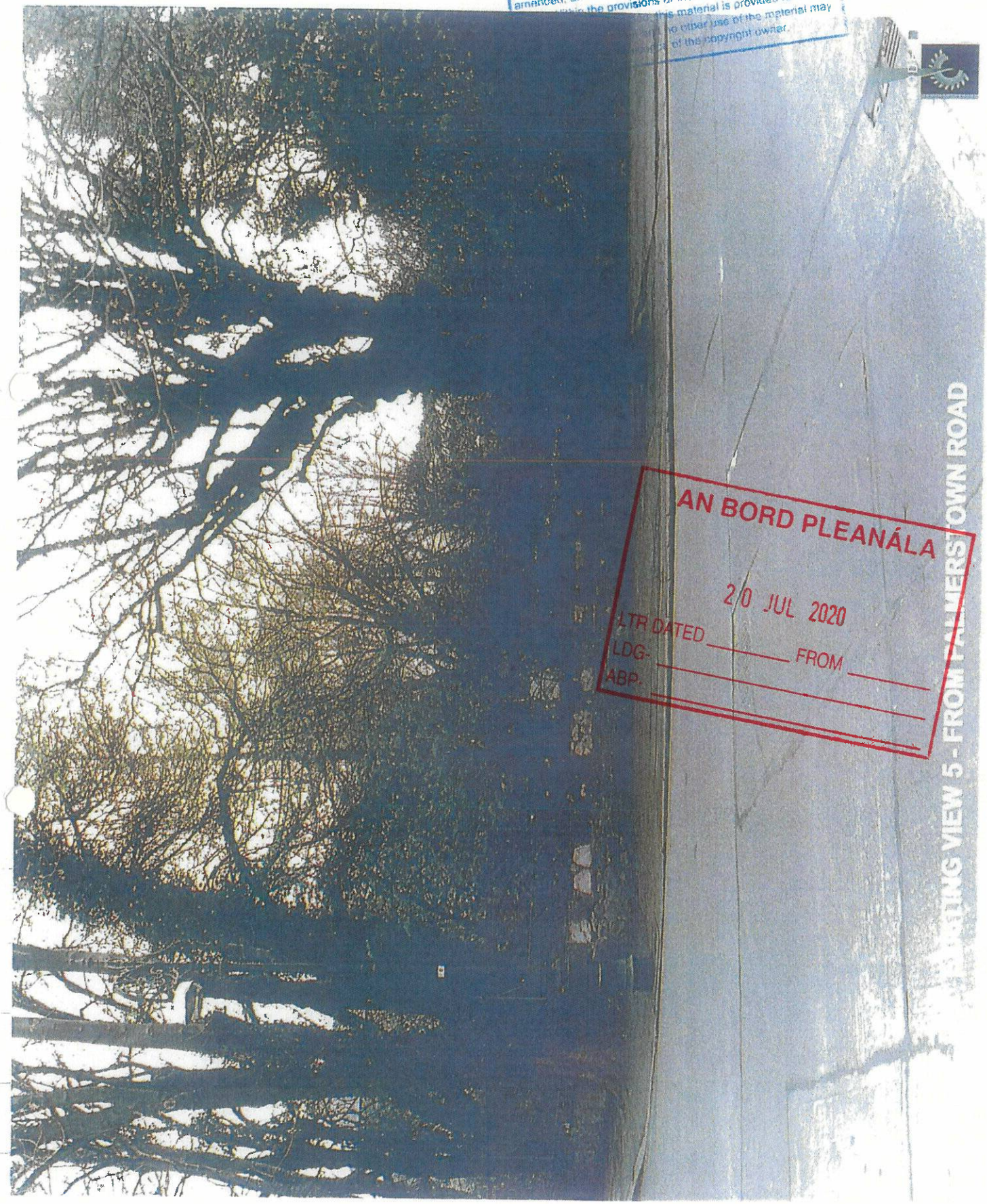

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PROPOSED VIEW 5 - FROM PALMERSTOWN ROAD

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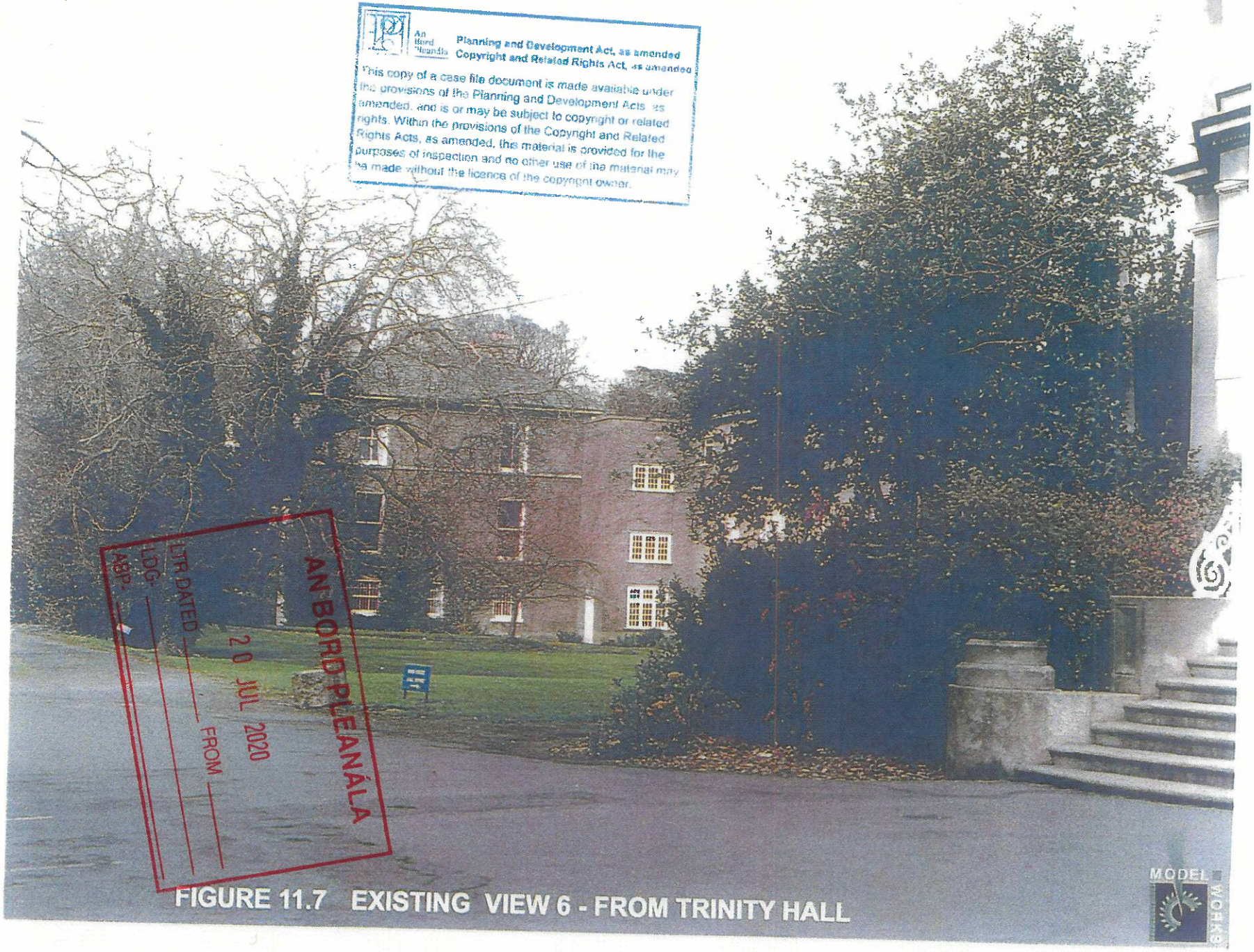

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FIGURE 11.7 EXISTING VIEW 6 - FROM TRINITY HALL

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FIGURE 11.7 PROPOSED VIEW 6 - FROM TRINITY HALL

FIGURE 11.8 - EXISTING VIEW 7 - FROM PURSER HOUSE

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